

CLEAN

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**NAVAL STATION TREASURE ISLAND
HUNTERS POINT ANNEX
SAN FRANCISCO, CALIFORNIA**

**SURVEY FOR LONG-LIVED AIRBORNE
GROSS ALPHA AND BETA RADIOACTIVITY**

DRAFT REPORT

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SURVEY FOR LONG-LIVED AIRBORNE
GROSS ALPHA AND BETA RADIOACTIVITY
AT
NAVAL STATION TREASURE ISLAND
HUNTERS POINT ANNEX
SAN FRANCISCO, CALIFORNIA

August 7 - September 5, 1991

1.0 INTRODUCTION

This report summarizes the results of the ambient airborne particulate radioactivity monitoring conducted at Naval Station Treasure Island, Hunters Point Annex (HPA), San Francisco, CA, by Paul Blodgett, Pat Clark, and Felice Janelle of Normandeau Associates Inc. (NAI). As requested by PRC Environmental Management, Inc. (PRC), background air monitoring for particulate radiation was conducted with high volume air samplers for 24 hours at each sample location. Particulate air monitoring was conducted from August 7 through 11, 26 through 30, and September 3 through 5, 1991. The purpose of this monitoring was to determine background airborne particulate alpha and beta radiation levels prior to the soil being sampled for radiation at and around areas immediately surrounding sites IR-01, IR-02, and IR-05.

2.0 STUDY PROTOCOL

The method for determining the sample locations for the HPA Project was based on the EPA report 560/5-86-017, "Verification of PCB Spill Cleanup by Sampling and Analysis". This document has been issued to PRC.

As detailed in the Statement of Work for the HPA Project, air particulate samples were collected over a 24-hour period for the determination of gross alpha and beta radiation at each sample location. This procedure was performed in accordance with EPA Method EPA-600/4-77-027a. Following laboratory analysis, if an air sample exceeded 1×10^{-14} micro curies per cubic centimeter ($\mu\text{Ci}/\text{cc}$) of alpha activity, radiochemical analysis for the isotopes ^{241}Am , ^{239}Pu , ^{228}Th , ^{226}Ra ,

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and ^{228}Ra was conducted on grouped air samples. The purpose of grouping the samples was to increase their effective minimum detection limit concentration.

Health and Safety Procedures were followed in accordance with The Hunters Point Project Specific Health and Safety Plan for Airborne Radiation Assessment Activities developed by NAI and TMA/Eberline.

3.0 SUMMARY OF RESULTS

Fifty samples were collected which included three duplicate samples, four replicate samples, and eight field blanks. Of fifty samples analyzed for gross alpha activity, only two exceeded the critical level (L_c). None of the measured gross alpha air particulate concentrations exceeded the lower limit of detection (LLD). Twenty six of the fifty samples analyzed for gross beta activity exceeded the L_c . Of these, nine samples had measured gross beta particulate concentrations that exceeded the LLD. Definitions of the L_c and LLD are provided in Sections 6.2 and 6.3, respectively. All of the measured concentrations were below the current and pending limits for airborne concentrations of radioactive materials in ambient air as presented in Table III.

Five sample locations were sited as control stations (A2, B1, C1, D1 and E1). During the study, these locations were in a position downwind from the study site less than 5% of the hours sampled, generally during periods of lowest observed average wind speeds. Of the five samples obtained from the control stations; none exceeded the gross alpha activity L_c or LLD; four exceeded the gross beta activity L_c ; and three of these four exceeded the gross beta activity LLD.

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4.0 FIELD AND LABORATORY METHODS

4.1 Sample Location Selection

Particulate air sampling locations were selected as prescribed in EPA report EPA-560/5-86-017, "Verification of PCB Spill Cleanup by Sampling and Analysis". Particulate air sampling points were arranged in a hexagonal grid where the distance between points was 800 feet and the distance between rows was 790 feet as determined by Table 2 in the EPA report EPA-560/5-86-017, Appendix A. As depicted in Figure 1, the HPA Project survey area was laid out to include zones IR-1, IR-2, and IR-5. Since HPA was adjacent to the San Francisco Bay, 14 of the sites originally selected would have been located in the Bay. These air sample locations were moved to the east and west sides of HPA. In cases where an air sample location was on top of or adjacent to a building, it was moved away from the building by a distance of 1.5 times the height of the building. Four air samples were located in "control" areas not directly influenced by wind patterns which pass over the three contaminated zones, to determine background alpha activity of areas outside HPA. (Refer to Figure 2 for actual air sample locations.) A total of 35 sample locations were selected and sampled. Three sample locations were sampled with collocated samplers and four of the sample locations were revisited on other days. A total of 42 samples were collected, three of which were duplicates and four of which were replicates.

4.2 Air Sample Collection

Particulate air samples were collected as prescribed by the methods detailed below and in accordance with good industrial hygiene practice. Ambient air samples were collected in accordance with EPA Method EPA-600/4-77-027a, Quality Assurance Handbook for Air Pollution Measurement Systems, Vol. II, and NAI Standard Operating Procedures 050, 200-6, and 400-7. The EPA method describes a general protocol for high volume sampling which determines total airborne particulates greater than 0.3 μm diameter. Since the method does not specify

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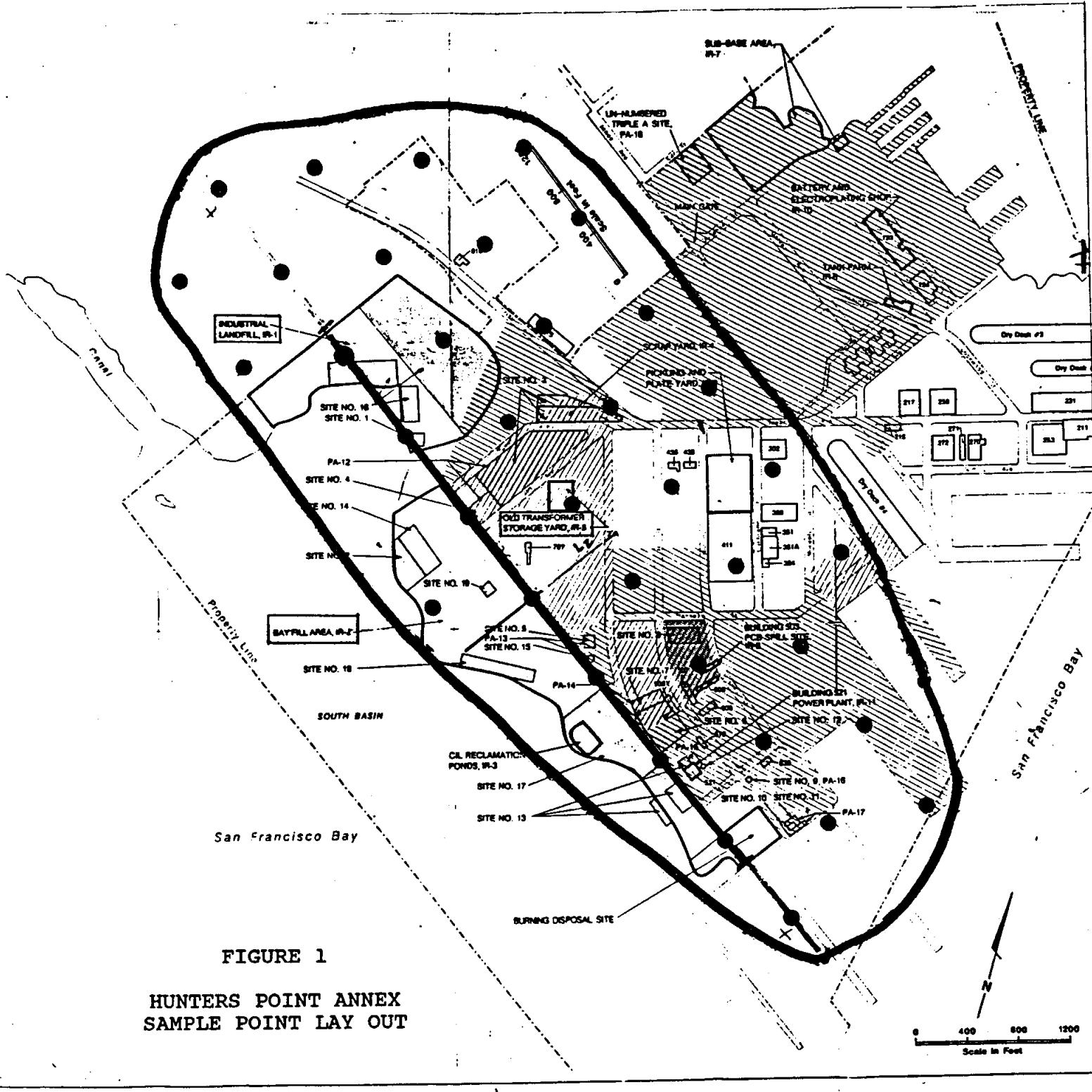


FIGURE 1

HUNTERS POINT ANNEX
SAMPLE POINT LAY OUT

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airborne radiation analysis, the collection and analytical technique was modified to quantify airborne gross alpha and beta activity.

Continuous 24-hour air samples were collected with General Metal Works, High Volume Samplers (Model GMWL-2000H) operating at flow rates between 50 and 60 cubic feet per minute (CFM), collecting volumes of 2000 to 2800 cubic meters of air (Refer to Appendix B for an example of sample volume calculations). High volume air samplers were calibrated before and after sample collection using a General Metal Works orifice calibrator and a manometer (Refer to Volume II of this report for calibration data for all samples collected). Air samples were collected on #41 Whatman 8" x 10" cellulose filters contained in a two-piece cartridge. Since the collected samples were analyzed for gross alpha and beta radioactivity, a cellulose filter was used in place of a glass fiber filter (as listed in the method) to reduce attenuation of alpha radiation due to the sampling media. Following sample collection, the filter was removed from the filter holder and folded lengthwise with the exposed surface of the filter inward. The folded filter was placed in a labeled paper jacket and inserted into a glassine bag for transport to the laboratory.

Since most air sample locations were too far removed from an accessible electrical outlet, each high volume sampler was powered by a portable AC generator. Additionally, in order to ensure the integrity of the remote samples at the west side of the survey area, security guards were hired to patrol the sample locations for the duration of the sampling period.

Particulate airborne radiation monitoring was conducted from August 7 through 11, August 26 through August 30, and September 3 through September 5, 1991. Due to rain on August 12, a set of six samples collected on this date were not submitted for analysis and further particulate air sampling was postponed. Since airborne particulates were being sampled, rain would remove particulates from the air and bias sample results. Particulate air sampling resumed on August 26 at which time the weather was clear and the soil was dry.

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Wind speed and direction data were obtained from the National Oceanographic and Atmospheric Administration (NOAA) weather station located at the San Francisco International Airport. Frequency distributions of average hourly wind speed/direction in the form of windrose diagrams were generated from these data. (Refer to Appendix C.)

4.3 Laboratory Analysis

The analysis for gross alpha and gross beta radioactivity was performed by TMA/Norcal using a method developed by TMA/Norcal. A representative, two-inch diameter section of the filter was counted in a Tennelec Proportional Counter (Model LB4000) for 100 minutes in the alpha plateau mode followed by fifty minutes in a Geiger-Muller beta counter. The result of the counting was provided as net counts per minute (CPM) and corrected for detector efficiencies to yield gross alpha and beta results in disintegrations per minute (DPM). Appendix D.1 contains radiochemistry data and Appendix D.2 contains quality control backup information for the radiochemistry data. TMA/Norcal is certified by the State of California for radiochemistry analysis of drinking water. There is no equivalent certification for radiochemistry analysis of air or soils.

5.0 HEALTH AND SAFETY METHODS

5.1 Personal Protection

During the air particulate radiation study, personnel and equipment were monitored with a hand-held direct-reading meter to detect surface contamination by alpha, beta and gamma emitting radioactive materials. Since there were no physical boundaries to distinguish the contaminated zones, J Street was used as the boundary for IR-1 and Spear Avenue as the boundary for IR-2. Before entering these zones, Tyvek® suits were donned. The ESP-1 was used to check hands, feet, and truck tires for contamination upon exiting these zones. Persons entering these zones were also issued a thermo luminescent detector (TLD) badge which was worn continuously while on the HPA site.

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5.2 Personal Monitoring

Alpha emitters on surfaces were monitored using an Eberline ESP-1 rate meter/scaler in conjunction with an Eberline AC-3 alpha scintillation detector. Beta and gamma emitting radioactive materials were monitored using an Eberline ESP-1 in conjunction with an Eberline HP-210 pancake GM detector. The response of each of these detectors was checked daily (or before each use) by holding a calibrated ^{230}Th source to the sensitive area of the probe and noting the response. Background was measured by noting the instrument response with no source held to the sensitive area of the probe.

The contamination survey procedure involved noting the instrument response while maintaining the sensitive area of the detector about 1 centimeter (cm) from the surface of interest. The detector was moved along the surface at the rate of about 1 cm/second.

Alpha surface contamination levels that resulted in an instrument response of 2 CPM above background were considered significant. (Refer to Appendix E for Real Time Exposure Monitoring Data.) Beta/gamma surface contamination levels that resulted in an instrument response of twice background were considered significant.

6.0 DISCUSSION OF RESULTS

6.1 General

The gross alpha air sample results are presented in Table I. Gross beta air sample results are presented in Table II. Comparable limits for airborne radioactive materials are presented in Table III. The footnotes to Tables I and II list two detection limit quantities (L_e and LLD) which require discussion.

TABLE I
AIRBORNE ALPHA RADIOACTIVITY
AT
HUNTERS POINT NAVAL STATION
SAN FRANCISCO, CALIFORNIA

AUGUST 7 - SEPTEMBER 5, 1991

Sample Location	Sample Description	Date	Volume (M3)	Sample Concentration uCi/cc	Lc Concentration uCi/cc	Two Sigma Concentration uCi/cc
A2-A	123 feet from fence corner at 160°	8-26-91	2288.9	1E-15	1E-15	2E-15
A3-A	Corner of Earl & LaSalle at Navy Road	8-29-91	2407.0	4E-16	1E-15	2E-15
A4-A	137 feet from bldg. 813 at 285°	8-28-91	2206.1	1E-15 *	1E-15	1E-15
(1) A4-B	137 feet from bldg. 813 at 285°	8-28-91	2460.5	-7E-16	8E-16	9E-16
A5-A	54 feet from Bldg. 302A at 15°	8-7-91	1268.9	-2E-15	1E-15	1E-15
A5-B	54 feet from Bldg. 302A at 15°	8-29-91	1971.3	1E-15	1E-15	2E-15
A6-A	91 feet from Bldg. 323 at 49°	9-3-91	2187.3	9E-16	1E-15	2E-15
B1-A	40 feet from W. Fence Line & Griffith at 105°	8-8-91	1498.3	2E-16	9E-16	1E-15
B2-A	77 feet from Bldg. 816 at 323°	8-29-91	2418.4	-3E-16	8E-16	9E-16
B3-A	263 feet from Bldg. 815 at 87°	8-28-91	2205.2	0E+00	1E-15	1E-15
B4-A	385 feet from Bldg. 810 at 84°	8-9-91	1273.2	2E-16	1E-15	2E-15
(1) B4-B	385 feet from Bldg. 810 at 84°	8-9-91	1720.6	-2E-16	8E-16	1E-15
B5-A	29 feet from Bldg. 405 at 160°	8-11-91	2043.0	1E-15	1E-15	2E-15
B6-A	56 feet from Bldg. 410 at 184°	8-9-91	1270.5	1E-15	2E-15	2E-15
B7-A	320 feet from Bldg. 307 at 320°	8-7-91	1573.0	-5E-16	8E-16	9E-16
B8-A	117 feet from Bldg. 370 at 169°	8-10-91	2273.1	1E-16	7E-16	9E-16
B9-A	888 feet from the N.W. Corner of Regunning Pier	8-26-91	2570.2	-5E-16	9E-16	1E-15
C1-A	75 feet from N.E. Corner of Griffith & Crisp at 151°	8-27-91	2248.6	2E-16	9E-16	1E-15
C2-A	345 feet from N. Corner of IR-1 Boundary at W. Fence Line	8-26-91	2231.9	7E-16	1E-15	1E-15
C3-A	186 feet from Well IR01B017 at 140°	9-4-91	2215.4	8E-16	2E-15	2E-15
C4-A	70 feet from Well I-2 at 215°	8-10-91	2259.5	5E-17	1E-15	1E-15
C5-A	380 from Bldg. 704 at 350°	8-7-91	1742.8	-2E-16	6E-16	7E-16
C6-A	119 feet from Bldg. 414 at 288°	9-4-91	2262.5	-4E-16	1E-15	2E-15
(2) C7-B	572 feet from Bldg. 408 at 159°	8-26-91	2299.7	5E-16	1E-15	1E-15
C7-A	572 feet from Bldg. 408 at 159°	8-10-91	2329.2	-4E-16	5E-16	6E-16
C8-A	253 feet from Bldg 530 at 317°	9-4-91	2308.2	-8E-16	1E-15	1E-15
C9-A	42 feet from corner of pier at 12°	8-8-91	1738.0	-2E-15	1E-15	9E-16

(1) Indicates duplicate sample

(2) Indicates replicate sample

* One asterisk beside the concentration signified that the measured result exceeds the critical level and it may be concluded with 95% confidence that net radioactivity was present on the air filter.

** Two asterisks beside the concentration signifies that the measured result exceeds the lower limit of detection (LLD) and it may be concluded with 95% confidence that the amount of radioactivity present exceeds the critical level.

TABLE II
AIRBORNE BETA RADIOACTIVITY
AT
HUNTERS POINT NAVAL STATION
SAN FRANCISCO, CALIFORNIA

AUGUST 7 - SEPTEMBER 5, 1991

Sample Location	Sample Description	Date	Volume (M3)	Sample Concentration uCi/cc	Lc Concentration uCi/cc	Two Sigma Concentration uCi/cc
A2-A	123 feet from fence corner at 160°	8-26-91	2288.9	4E-15 *	3E-15	4E-15
A3-A	Corner of Earl & LaSalle at Navy Road	8-29-91	2407.0	3E-15 *	3E-15	4E-15
A4-A	137 feet from bldg. 813 at 285°	8-28-91	2206.1	5E-15 **	2E-15	3E-15
(1) A4-B	137 feet from bldg. 813 at 285°	8-28-91	2460.5	5E-15 *	3E-15	4E-15
A5-A	54 feet from Bldg. 302A at 15°	8-7-91	1268.9	5E-15	6E-15	8E-15
A5-B	54 feet from Bldg. 302A at 15°	8-29-91	1971.3	-3E-15	3E-15	4E-15
A6-A	91 feet from Bldg. 323 at 49°	9-3-91	2187.3	3E-15	4E-15	5E-15
B1-A	40 feet from W. Fence Line & Griffith at 105°	8-8-91	1498.3	3E-15	4E-15	6E-15
B2-A	77 feet from Bldg. 816 at 323°	8-29-91	2418.4	3E-15 *	2E-15	3E-15
B3-A	263 feet from Bldg. 815 at 87°	8-28-91	2205.2	2E-15	2E-15	3E-15
B4-A	385 feet from Bldg. 810 at 84°	8-9-91	1273.2	-1E-15	5E-15	6E-15
(1) B4-B	385 feet from Bldg. 810 at 84°	8-9-91	1720.6	6E-16	5E-15	6E-15
B5-A	29 feet from Bldg. 405 at 160°	8-11-91	2043.0	7E-15 **	3E-15	4E-15
B6-A	56 feet from Bldg. 410 at 184°	8-9-91	1270.5	-5E-16	6E-15	8E-15
B7-A	320 feet from Bldg. 307 at 320°	8-7-91	1573.0	1E-14 *	6E-15	9E-15
B8-A	117 feet from Bldg. 370 at 169°	8-10-91	2273.1	3E-15	3E-15	4E-15
B9-A	888 feet from the N.W. Corner of Regunning Pier	8-26-91	2570.2	5E-15 *	3E-15	4E-15
C1-A	75 feet from N.E. Corner of Griffith & Crisp at 151°	8-27-91	2248.6	1E-14 **	3E-15	4E-15
C2-A	345 feet from N. Corner of IR-1 Boundary at W. Fence Line	8-26-91	2231.9	7E-15 **	3E-15	5E-15
C3-A	186 feet from Well IR01B017 at 140°	9-4-91	2215.4	5E-15 *	3E-15	4E-15
C4-A	70 feet from Well I-2 at 215°	8-10-91	2259.5	9E-15 **	4E-15	6E-15
C5-A	380 from Bldg. 704 at 350°	8-7-91	1742.8	9E-15 *	5E-15	7E-15
C6-A	119 feet from Bldg. 414 at 288°	9-4-91	2262.5	1E-15	3E-15	4E-15
(2) C7-B	572 feet from Bldg. 408 at 159°	8-26-91	2299.7	4E-15 *	3E-15	4E-15
C7-A	572 feet from Bldg. 408 at 159°	8-10-91	2329.2	5E-15 *	4E-15	6E-15
C8-A	253 feet from Bldg 530 at 317°	9-4-91	2308.2	2E-15	3E-15	4E-15
C9-A	42 feet from corner of pier at 12°	8-8-91	1738.0	2E-15	4E-15	6E-15

(1) Indicates duplicate sample

(2) Indicates replicate sample

* One asterisk beside the concentration signified that the measured result exceeds the critical level and it may be concluded with 95% confidence that net radioactivity is present on the air filter.

** Two asterisks beside the concentration signifies that the measured result exceeds the lower limit of detection (LLD) and it may be concluded with 95% confidence that the amount of radioactivity present exceeds the critical level.

TABLE II
AIRBORNE BETA RADIOACTIVITY
AT
HUNTERS POINT NAVAL STATION
SAN FRANCISCO, CALIFORNIA

AUGUST 7 - SEPTEMBER 5, 1991

Sample Location	Sample Description	Date	Volume (M3)	Sample Concentration uCi/cc	Lc Concentration uCi/cc	Two Sigma Concentration uCi/cc
D1-A	435 feet from S.W. Corner of Thomas & Griffith at 304°	8-27-91	2304.4	8E-15 **	3E-15	4E-15
D2-A	300 feet from S.W. Corner of Thomas & Griffith at 112°	9-4-91	2277.3	6E-15 *	4E-15	6E-15
D3-A	85 feet from Well I-9 at 132°	8-27-91	2190.5	7E-15 **	3E-15	5E-15
D4-A	183 feet from Well IROZMW126 at 52°	9-3-91	2206.6	5E-15 *	3E-15	4E-15
D4-B	183 feet from Well IROZMW126 at 52°	9-3-91	2367.1	4E-15 *	3E-15	4E-15
D5-A	268 feet from Bldg. 600 at 27°	8-29-91	2204.7	1E-15	3E-15	4E-15
D5-B	268 feet from Bldg. 600 at 27°	9-3-91	2241.7	3E-15	4E-15	5E-15
D6-A	190 feet from Well IRO2B096 at 132°	8-10-91	1894.3	5E-15 *	4E-15	7E-15
(1) D7-A	136 feet from Well B-5 at 344°	9-4-91	2230.8	4E-15 *	3E-15	4E-15
D7-B	136 feet from Well B-5 at 344°	8-11-91	2318.8	4E-15 *	4E-15	6E-15
D8-A	184 feet from Well 175A at 30°	8-10-91	2247.2	3E-15	4E-15	5E-15
D9-A	777 feet from north corner of pier at 126°	8-27-91	2401.3	6E-15 **	2E-15	3E-15
(2) E1-A	90 feet from the S.E. Corner of VanDyke at CSPSRA fence	9-3-91	2224.2	9E-15 **	3E-15	5E-15
E2-A	286 feet from corner of VanDyke & Griffith at 140°	8-28-91	2277.7	3E-15	3E-15	4E-15
E3-A	59 feet from Well IRO2B151 at 196°	8-29-91	2188.3	3E-15 *	3E-15	4E-15
FB-1	Blank	8-8-91	N/A	8E-08	4E-07	5E-07
FB-2	Blank	8-10-91	N/A	3E-07	5E-07	7E-07
FB-3	Blank	8-11-91	N/A	1E-07	4E-07	6E-07
FB-4	Blank	8-26-91	N/A	0E+00	3E-07	4E-07
FB-5	Blank	8-27-91	N/A	-7E-08	3E-07	3E-07
FB-6	Blank	8-28-91	N/A	-5E-08	3E-07	3E-07
FB-7	Blank	9-3-91	N/A	2E-08	3E-07	4E-07
FB-8	Blank	9-4-91	N/A	-3E-07	4E-07	4E-07

(1) Indicates duplicate sample

(2) Indicates replicate sample

* One asterisk beside the concentration signified that the measured result exceeds the critical level and it may be concluded with 95% confidence that net radioactivity is present on the air filter.

** Two asterisks beside the concentration signifies that the measured result exceeds the lower limit of detection (LLD) and it may be concluded with 95% confidence that the amount of radioactivity present exceeds the critical level.

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TABLE III

Current ⁽¹⁾ and Pending ⁽²⁾ Limits for Airborne Concentrations
of Radioactive Materials in Ambient Air.

Isotope	Emission	Current Limit ($\mu\text{Ci}/\text{cc}$)	Pending Limit ($\mu\text{Ci}/\text{cc}$)
Radium-226	α	2×10^{-12} (insoluble) ³	9×10^{-13}
Radium-228	β	1×10^{-12} (insoluble)	2×10^{-12}
Thorium-228	α	2×10^{-13} (insoluble)	2×10^{-14} (class Y)
Uranium-235	α	4×10^{-12} (insoluble)	6×10^{-14} (class Y)
Plutonium-239	α	6×10^{-14} (soluble)	2×10^{-14}
Americum-241	α	2×10^{-13} (soluble)	2×10^{-14}

(1) California Code of Regulations, Title 17, Paragraph 30355, Appendix A,
also Code of Federal Regulations, Title 10, Part 20, Appendix B.

(2) Federal Register, Vol. 56, No. 98, page 23360, May 21, 1991 (10 CFR 20.,
Appendix B).

(3) Values provided are for the most restrictive form of the isotope
provided.

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6.2 Critical Level

The first data criterion, Critical level (L_c) is important for evaluating counting data (radioactivity) to determine whether it is distinguishable as being above background. The L_c is the criteria for deciding with a 95% confidence level that net activity is present in a sample. The L_c is equal to

$$L_c = k\alpha S_o$$

$k\alpha$ - the value of the upper percentile of the standardized normal variate corresponding to the preselected risk (α) for concluding falsely that activity is present. In this study, alpha was taken to be 0.05 with $k\alpha = 1.645$.

S_o - the estimated standard error for the net sample count rate when the sample activity is actually zero. Usually a mean background rate from a number of background counts is used whenever counting data are converted to radioactivity.

$$S_o = \sqrt{\frac{R_b}{T_s} + \frac{S_b^2}{n}}$$

If a mean background and standard deviation have not been determined, S_b^2/n may be replaced with R_b/T_b .

T_s - sample count times.
 T_b - background count times.
 R_b - background count rate.
 S_b - standard deviation of multiple background measurements.
 n - number of background measurements in the mean value.

Values of net sample count rate above L_c indicate the presence of sample radioactivity with a preselected risk (α).

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6.3 Lower Limit of Detection

The second criterion is more descriptive of the counting system and is termed LLD. This measurement device describes the smallest sample count rate which must be present in order to yield a net count sufficiently large so as to imply the presence of radioactivity. That is, the net count rate is greater than the L_c .

$$\begin{aligned} \text{LLD} &= (K\alpha + k\beta)S_0 \\ &= 3.29S_0 \\ &= 2L_c \end{aligned}$$

$k\beta$ - The value of the standardized normal variate for a predetermined degree of confidence ($1-\beta$) for detecting the presence of activity. Beta (β) was selected as 0.05 and $K\alpha = k\beta = 1.645$

The LLD indicates the net count rate necessary in a sample in order to detect its presence in the sample at a 95 percent confidence level that it exceeds the L_c . The LLD and L_c may be converted to activity or concentration when multiplied by suitable factors (NCRP, 1988).

6.4 Alpha Activity

Forty-two particulate air samples and eight field blanks were collected and analyzed for gross alpha activity. Only two of the fifty (4% of the total) gross alpha samples exceeded the L_c . This is not considered significant since a five percent false positive rate is expected when the L_c is used as a detection criterion. None of the gross alpha samples exceeded the LLD.

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6.5 Beta Activity

Forty two particulate air samples and eight field blanks were collected and analyzed for gross beta activity. Of the fifty samples that were analyzed for gross beta activity, 26 exceeded the L_c (52% of the total). Only five percent of the samples would have been expected to have results above the L_c if no net activity were present on them. Nine of the gross beta samples exceeded the LLD.

Positive gross beta results were obtained at HPA and off-site. The average gross beta concentration measured off-site was $6.5 \times 10^{-15} \pm 2.6 \times 10^{-15}$ $\mu\text{Ci}/\text{cc}$, where the error term is one standard deviation. The average gross beta concentration measured on-site was $4.0 \times 10^{-15} \pm 2.9 \times 10^{-15}$ $\mu\text{Ci}/\text{cc}$, where the error term is one standard deviation. It is concluded that gross beta ambient air concentrations off-site are not significantly different from those found on-site.

6.6 Regulatory Limits

The current and pending limits for airborne concentrations of radioactive materials in ambient air are provided in Table III. The pending environmental limits are expected to become effective on January 1, 1993 for facilities subject to Nuclear Regulatory Commission regulations. It is uncertain when the State of California will update its radiation control regulations to be consistent with NRC regulations.

6.7 Conclusion

The gross alpha and gross beta airborne particulate concentrations measured at HPA during this study are well below the limiting values for ambient air

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provided in Table III. The values reported in Tables I and II were typical of background levels observed at many locations in the United States.

6.8 References

NCRP Report No. 97, (1988). Measurement of Radon and Radon Daughters in Air.
National Council on Radiation Protection and Measurements, Bethesda, MD.

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APPENDIX A

**SAMPLE STRATEGY
EPA REPORT - 600/4-77-027A
TABLE 2**

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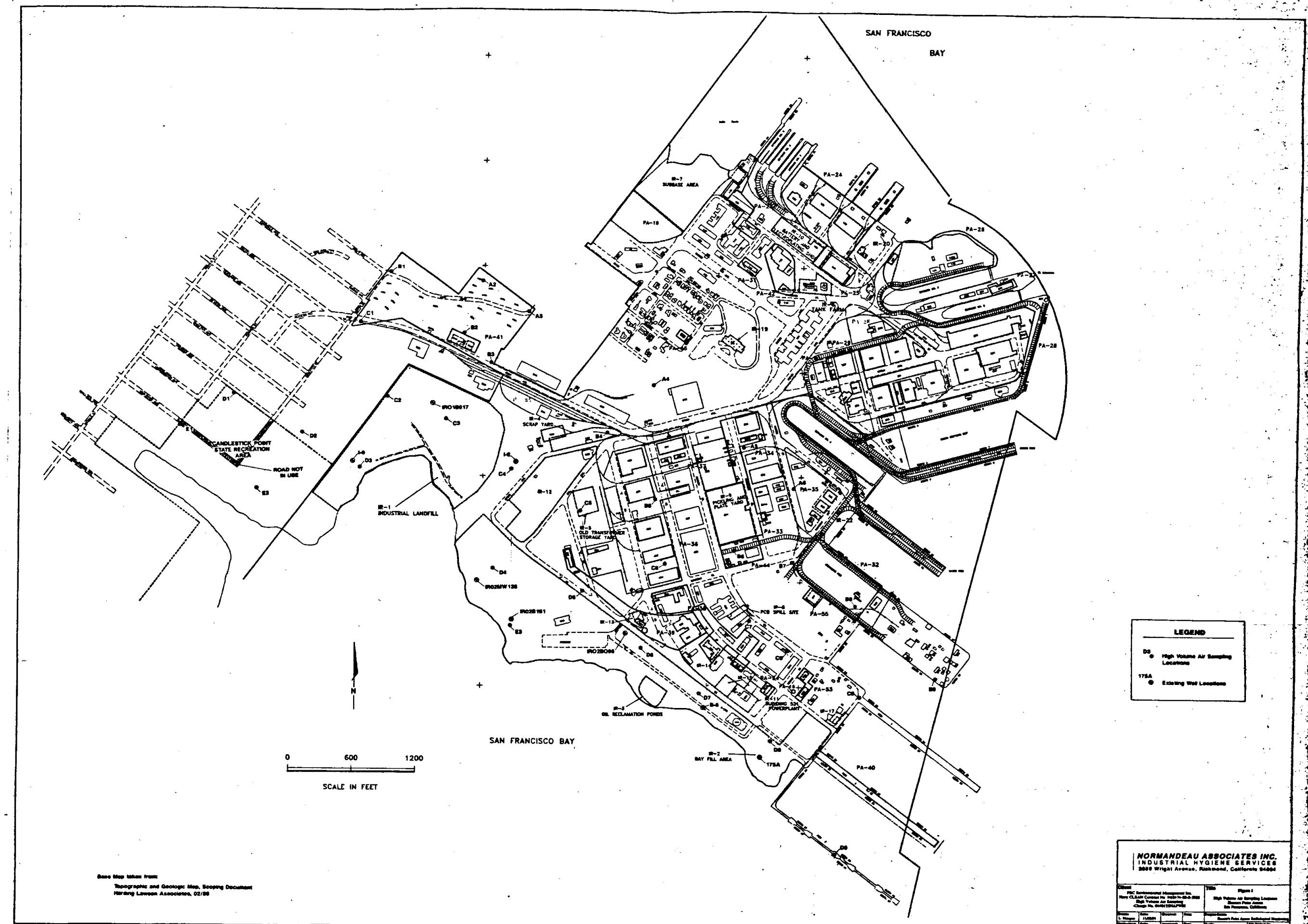
5.5 Step 5: Lay Out the Sampling Points on the Diagram Constructed in Step 2.

The geometric properties of the hexagonal designs can be used in many ways to lay out the sampling points. Perhaps the simplest way to proceed is as follows. Define s to be the distance between adjacent points and u to be the distance between successive rows of the design. The distances s and u are given in terms of the sampling radius, r , in Table 2 below for the given number of samples defined by the radius rule and listed in Table 1.

Table 2. Geometric Parameters of the Hexagonal Grid Designs,
for Sampling Radius r

Number of samples	Distance, s , between adjacent sample points	Distance, u , between successive rows
7	0.87r	0.75r
19	0.48r	0.42r
37	0.30r	0.26r

The recommended method for laying out the sample points of the hexagonal grid on the scale diagram is illustrated in Figure 9 and is described below.



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APPENDIX B
SAMPLE VOLUME CALCULATION

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HIGH VOLUME SAMPLER -- SAMPLE VOLUME CALCULATION HUNTERS POINT PROJECT AUGUST 7 - SEPTEMBER 5, 1991

PRECALIBRATION:

Before an airborne particulate sample was collected, the high volume air sampler was calibrated as follows:

Precal: $T_1=298$, $P_1=760$, $T_2=292.5$, $P_2=764$

Plate # holes	A Manometer Reading inches H2O	B Flow From Orifice Calibrator Curve CFM	C Corrected Flow Orifice Calibrator CFM	D Dickson Recorder Flow CFM
18	11.6	59.2	58.5	51.0
13	9.5	53.7	53.1	45.5
10	7.5	47.6	47.0	40.0

Manometer readings (A) and Dickson Recorder readings (D) were obtained during precalibration of the High Volume Sampler utilizing a Calibration Kit traceable to NIST. Manometer values were converted to flow rates at standard temperature and pressure (B) utilizing the Calibration Kit curve. These flow rates were then converted to flow rates at precalibration ambient temperature and pressure (C) utilizing Equation 1:

$$\text{eq. (1)} \quad \text{Corrected Flow} = Q_1(T_2 * P_1/T_1 * P_2)^{1/2}$$

$$\text{Example: } 58.5 = 59.2(292.5\text{K} * 760\text{mmHg}/298\text{K} * 764\text{mmHg})^{1/2}$$

POSTCALIBRATION:

After an airborne particulate sample was collected, the high volume air sampler was calibrated as follows:

Postcal: $T_1=298$, $P_1=760$, $T_2=293$, $P_2=766$

Plate # holes	E Manometer Reading inches H2O	F Flow From Orifice Calibrator Curve CFM	G Corrected Flow Orifice Calibrator CFM	H Dickson Recorder Flow CFM
18	11.5	59.0	58.3	50.0
13	9.4	53.4	52.7	44.5
10	7.5	47.6	47.0	39.5

Manometer readings (E) and Dickson Recorder readings (H) were obtained during postcalibration of the High Volume Sampler utilizing a Calibration Kit traceable to NIST. Manometer values were converted to flow rates at standard temperature

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and pressure (F) utilizing the Calibration Kit curve. These flow rates were then converted to flow rates at postcalibration ambient temperature and pressure (G) utilizing Equation 1.

D	C	H	Actual Flow I	Corrected Flow J	Regression Output:
51.0	58.5	50.0	57.6	57.6	Constant (b) 5.298
45.5	53.1	44.5	51.8	51.8	Std Err of Y Est 0.286
40.0	47.0	39.5	46.6	46.6	R Squared 0.999
					No. of Observations 3
					Degrees of Freedom 1
					X Coefficient (m) 1.045
					Std Err of Coef. 0.037

Dickson Recorder values were converted to flow rates at the precalibration temperature and pressure (I) utilizing a calibration curve developed from the high volume sampler precalibration results (Equation 2). These flow rates were then converted to flow rates at postcalibration ambient temperature and pressure (J) utilizing Equation 1.

Equation 2:

$$\text{eq. (2)} \quad I = mH + b, \quad m = \text{slope}, \quad b = Y \text{ intercept}$$

$$\text{Example: } I = (50.0 * 1.045) + 5.298$$

SAMPLE VALIDATION:

G	J	% D
58.3	57.6	-1.2
52.7	51.8	-1.7
47.0	46.6	-0.9

Flow rates at postcalibration ambient temperature and pressure obtained from NIST traceable orifices (G) were compared to flow rates at post calibration ambient temperature and pressure obtained from the High Volume Sampler Dickson Recorder (J) utilizing Equation 3:

$$\text{eq. (3)} \quad \% D = [(J-G)/J] * 100,$$

$$\text{example: } \% D = [(57.6-58.3)/57.6] * 100$$

If % D exceeded $\pm 7\%$, the sample was voided, the problem corrected, the sampler recalibrated, and the sample recollected. Those samplers that did fail sample validation failed because of faulty Dickson Recorders.

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SAMPLE VOLUME CALCULATIONS:

- (1) Six values were selected from the Dickson Recorder chart by selecting one point at random and dividing the chart into four hour increments from that random point. The six resulting values were averaged to obtain an average flow rate for the sample period. This flow rate was converted to a flow rate at the precalibration temperature and pressure (T) utilizing the calibration curve developed from the high volume sampler precalibration results.

- (2) The final volume of the sample was calculated utilizing Equation 4:

$$\text{eq. (4)} \quad \text{Volume (ft}^3\text{)} = \text{flow rate} * \text{time}$$

$$\text{example: Volume of sample} = 55.48 \text{ CFM} * 1440 \text{ min} = 79891.2 \text{ ft}^3$$

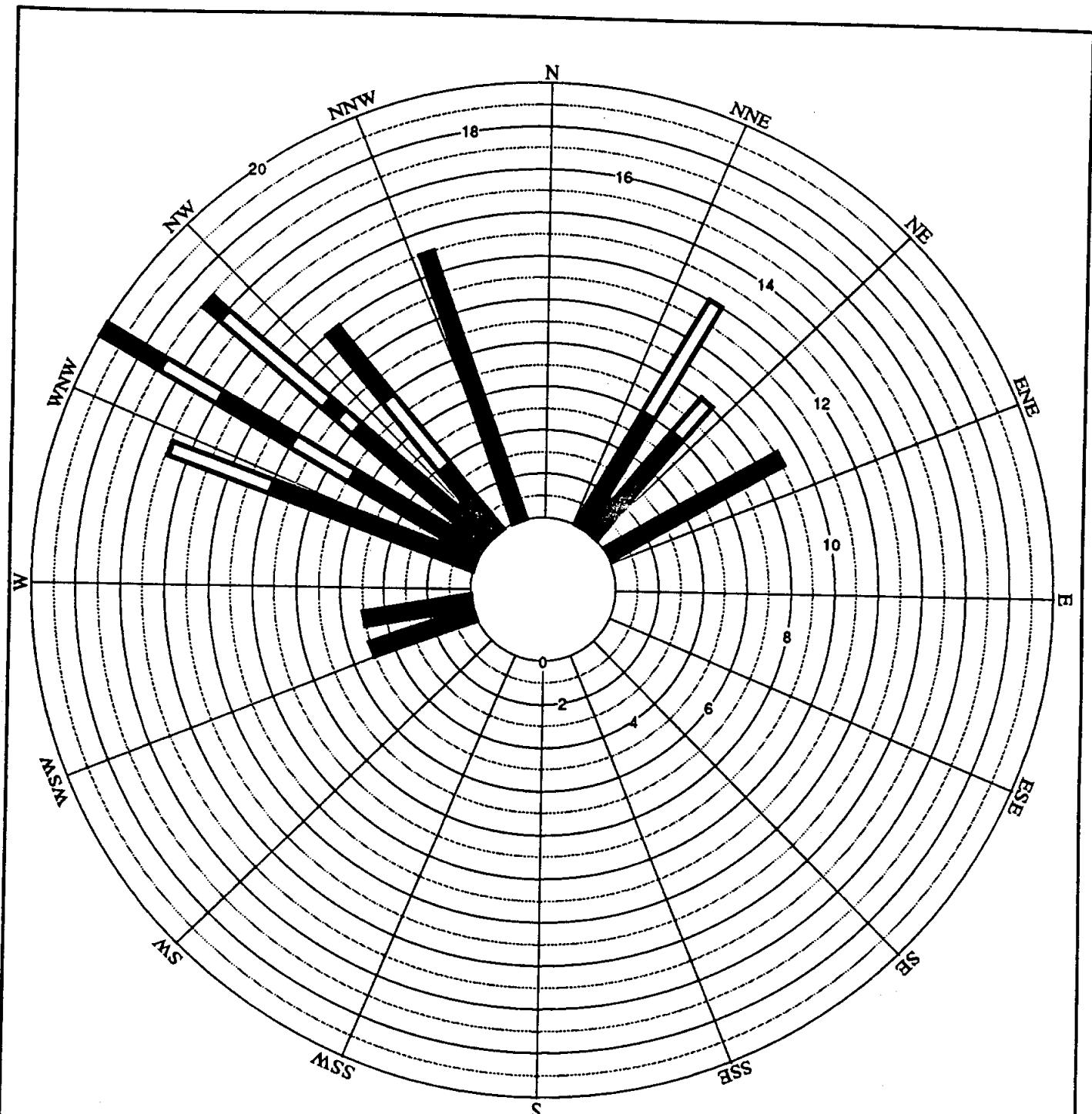
- (3) The final volume was converted to cubic meters utilizing Equation 5:

$$\text{eq. (5)} \quad V (\text{M}^3) = V (\text{ft}^3) * 0.0283 \text{ M}^3/\text{ft}^3$$

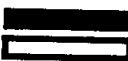
$$\text{example: Reported Volume} = 79891.2 \text{ ft}^3 * 0.0283 \text{ M}^3/\text{ft}^3 = 2262.7 \text{ M}^3$$

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APPENDIX C
DAILY WINDROSE DIAGRAMS

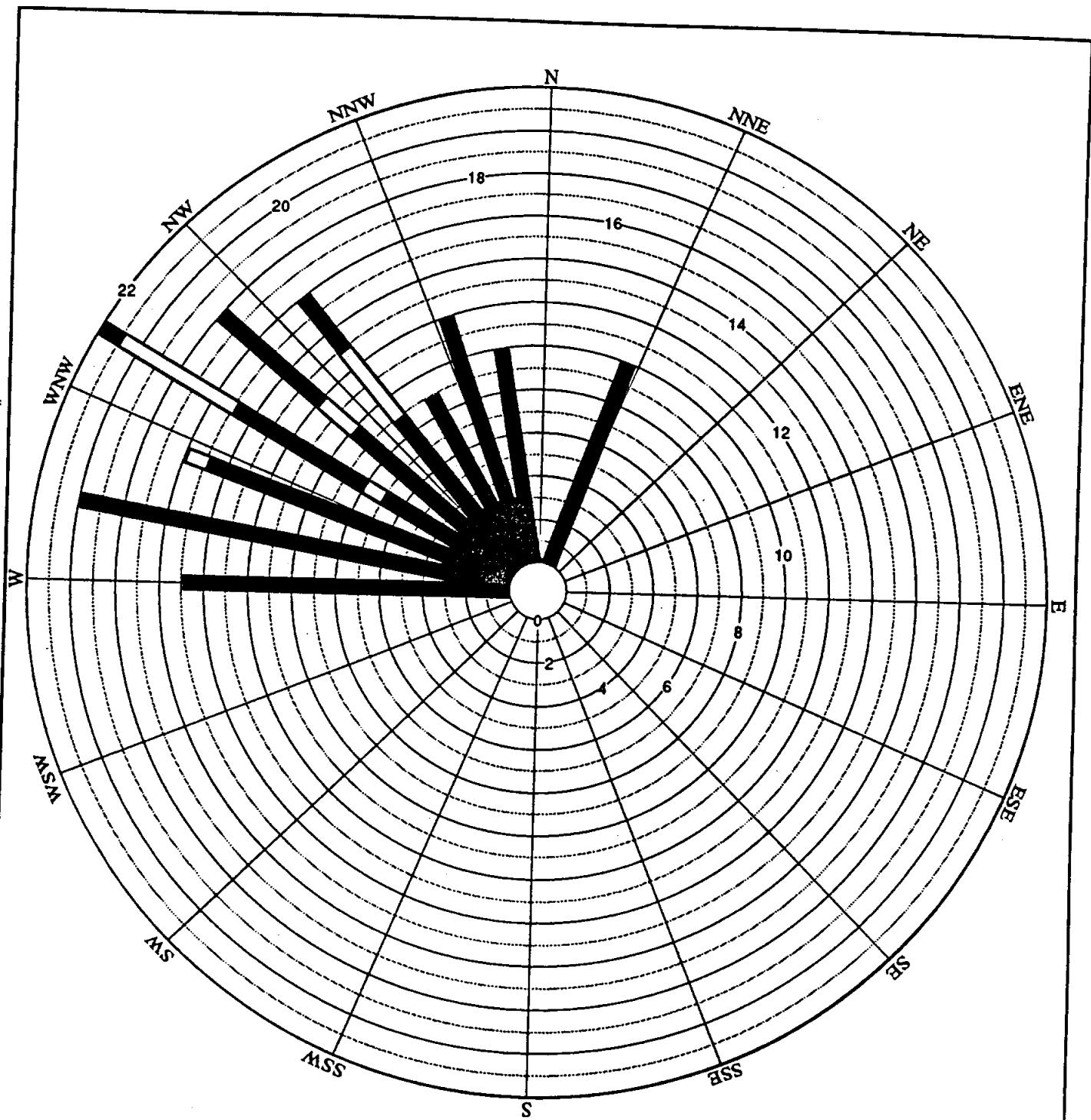


STATION: NSO (AV) SAN FRANCISCO, CA
 DATA SOURCE: NOAA
 PERIOD OF RECORD: AUGUST 7, 1991 - SEPTEMBER 5, 1991
 TYPE OF OBSERVATION: HOURLY 0050 TO 2350 HOURS



WINDSPEED IN MILES PER HOUR

FIGURE C-1
DAY 1 WINDROSE
HOURLY AVERAGE WINDSPEEDS
AUGUST 7, 1991

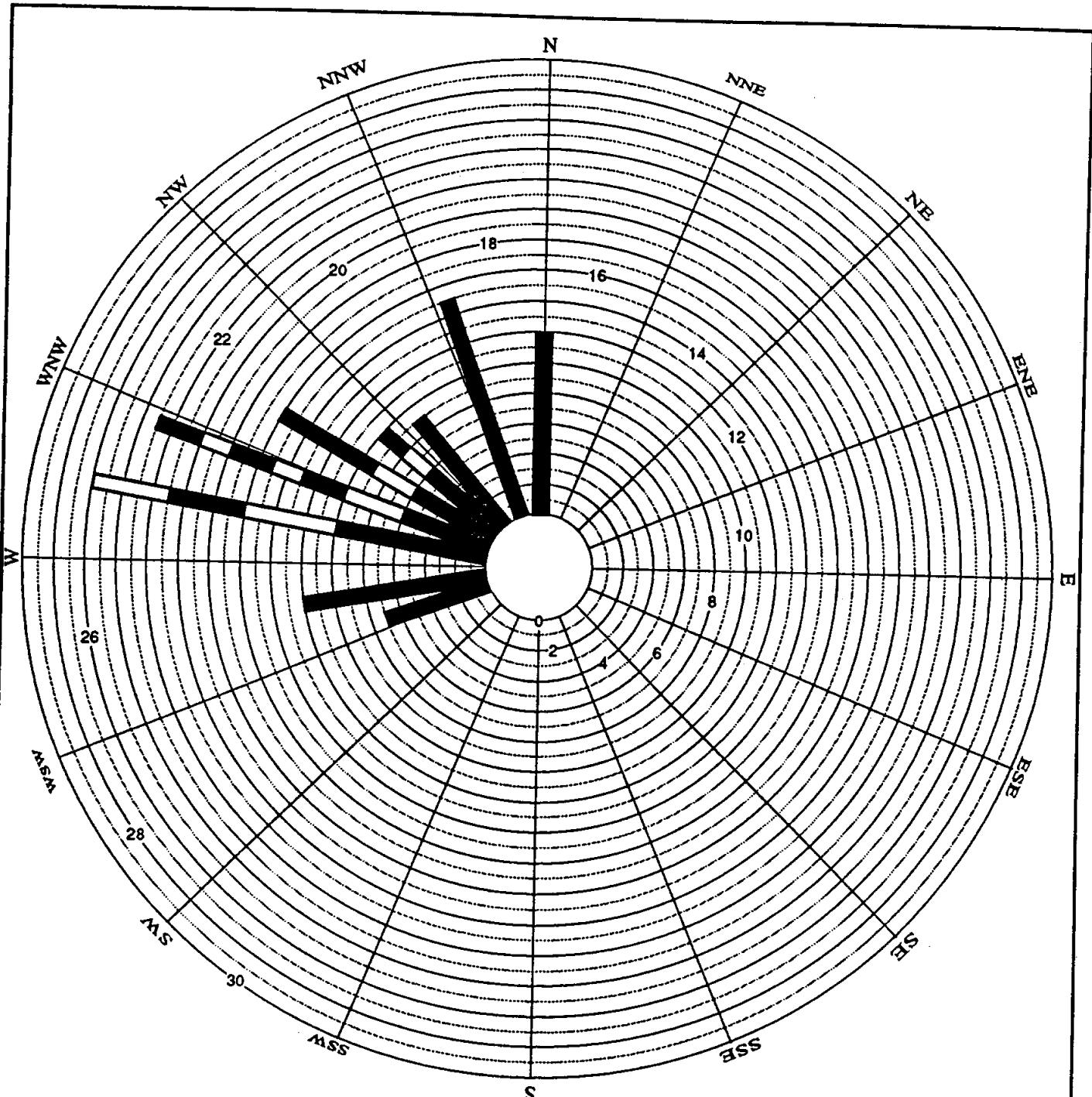


STATION: NSO (AV) SAN FRANCISCO, CA
 DATA SOURCE: NOAA
 PERIOD OF RECORD: AUGUST 7, 1991 - SEPTEMBER 5, 1991
 TYPE OF OBSERVATION: HOURLY 0050 TO 2350 HOURS



WINDSPEED IN MILES PER HOUR

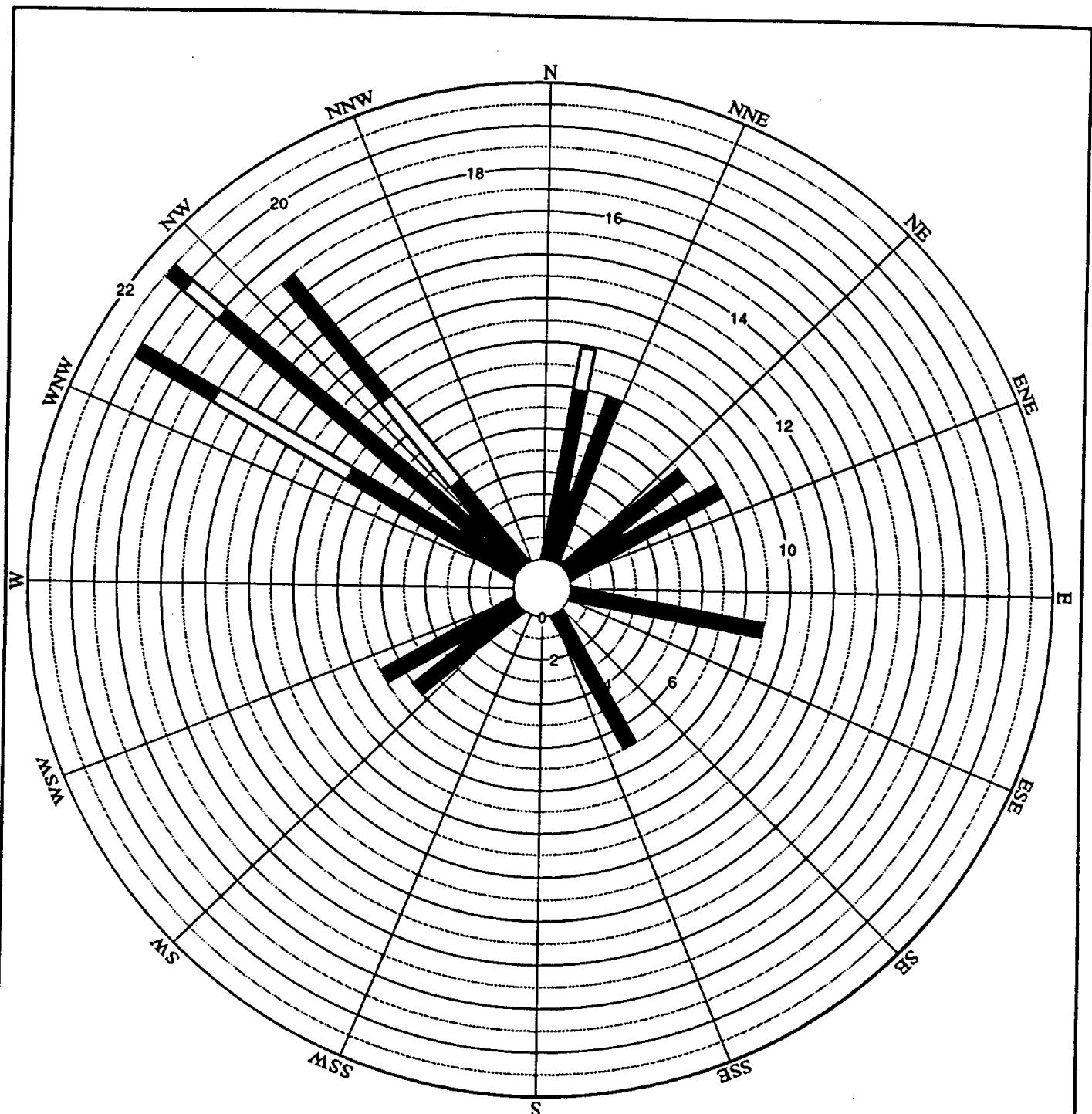
FIGURE C-2
DAY 2 WINDROSE
HOURLY AVERAGE WINDSPEEDS
AUGUST 8, 1991



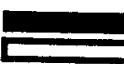
STATION: NSO (AV) SAN FRANCISCO, CA
DATA SOURCE: NOAA
PERIOD OF RECORD: AUGUST 7, 1991 - SEPTEMBER 5, 1991
TYPE OF OBSERVATION: HOURLY 0050 TO 2350 HOURS

FIGURE C-3
DAY 3 WINDROSE
HOURLY AVERAGE WINDSPEEDS
AUGUST 9, 1991

[REDACTED] WINDSPEED IN MILES PER HOUR

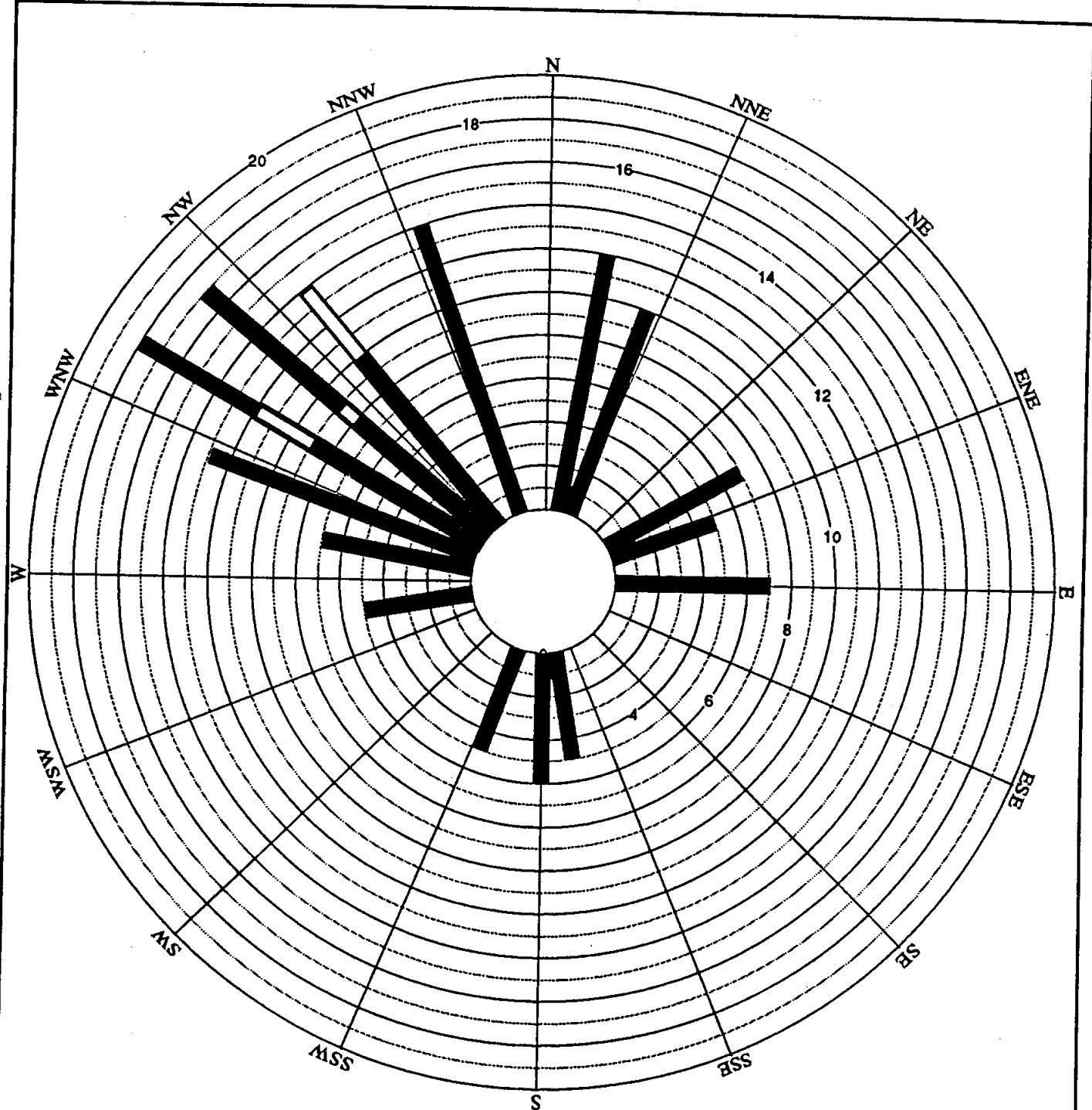


STATION: NSO (AV) SAN FRANCISCO, CA
DATA SOURCE: NOAA
PERIOD OF RECORD: AUGUST 7, 1991 - SEPTEMBER 5, 1991
TYPE OF OBSERVATION: HOURLY 0050 TO 2350 HOURS



WINDSPEED IN MILES PER HOUR

FIGURE C-4
DAY 4 WINDROSE
HOURLY AVERAGE WINDSPEEDS
AUGUST 10, 1991

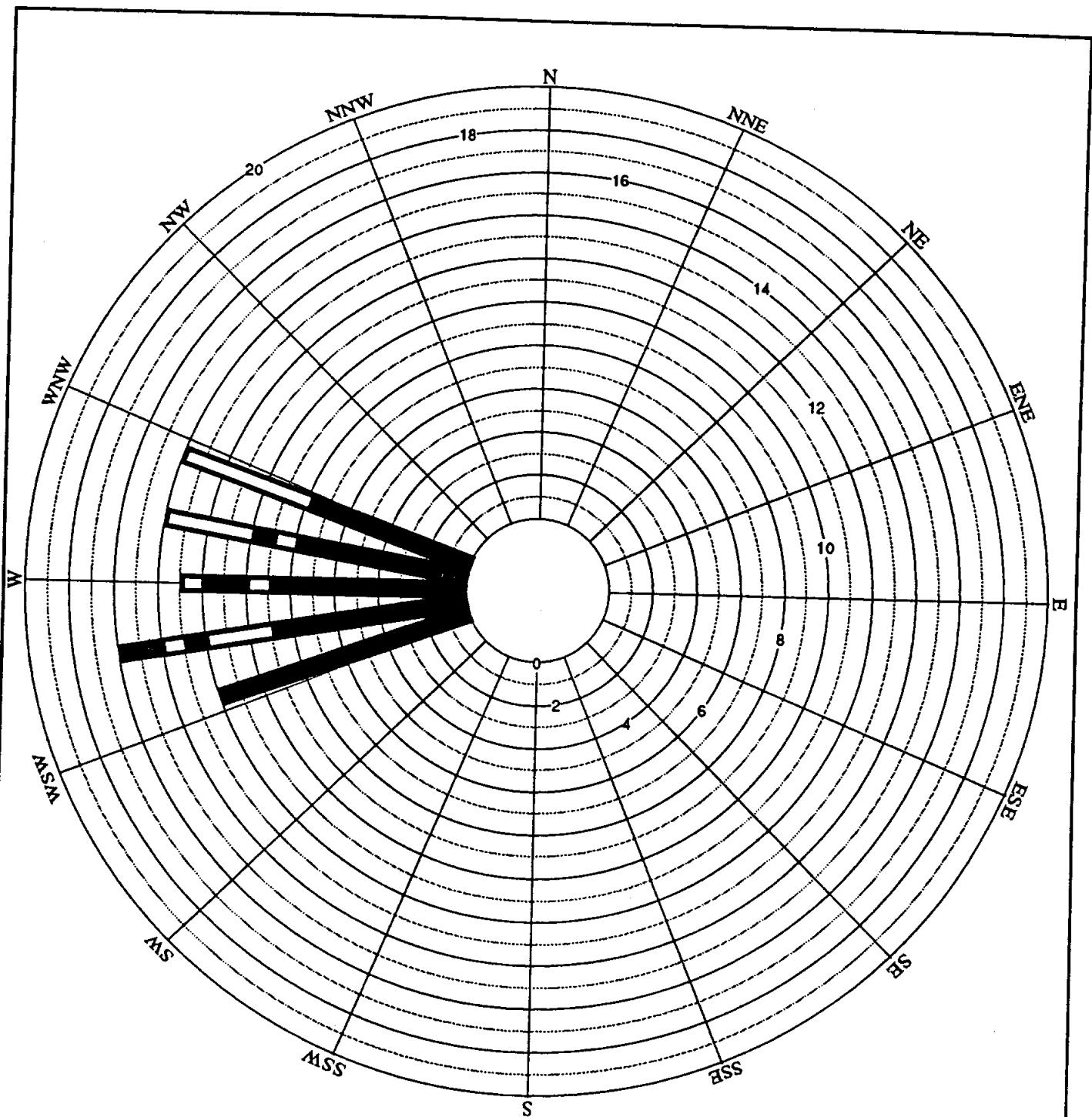


STATION: NSO (AV) SAN FRANCISCO, CA
 DATA SOURCE: NOAA
 PERIOD OF RECORD: AUGUST 7, 1991 - SEPTEMBER 5, 1991
 TYPE OF OBSERVATION: HOURLY 0050 TO 2350 HOURS

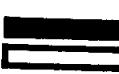


WINDSPEED IN MILES PER HOUR

FIGURE C-5
DAY 5 WINDROSE
HOURLY AVERAGE WINDSPEEDS
AUGUST 11, 1992

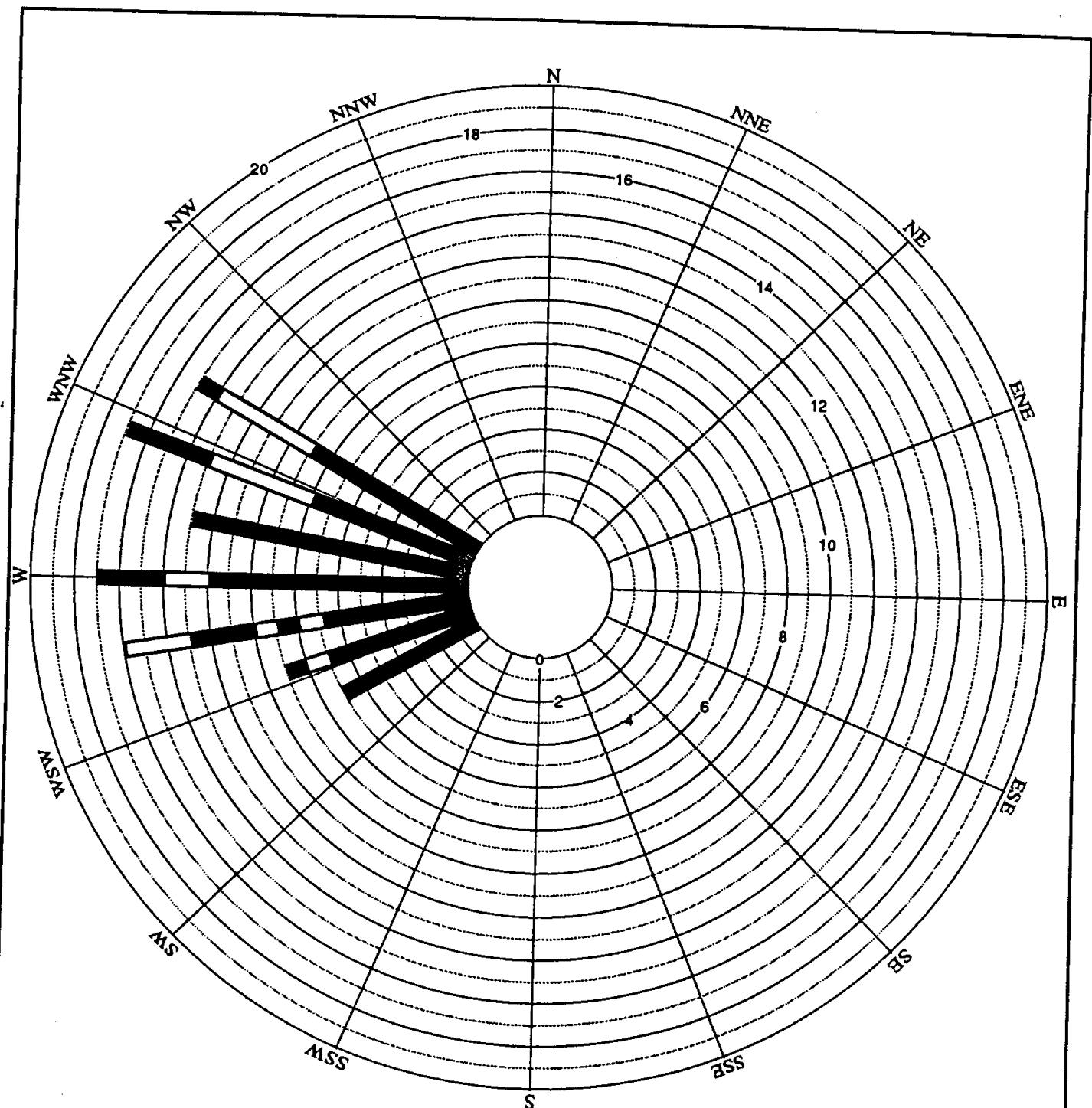


STATION: NSO (AV) SAN FRANCISCO, CA
 DATA SOURCE: NOAA
 PERIOD OF RECORD: AUGUST 7, 1991 - SEPTEMBER 5, 1991
 TYPE OF OBSERVATION: HOURLY 0050 TO 2350 HOURS

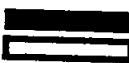


WINDSPEED IN MILES PER HOUR

FIGURE C-6
DAY 6 WINDROSE
HOURLY AVERAGE WINDSPEEDS
AUGUST 26, 1991

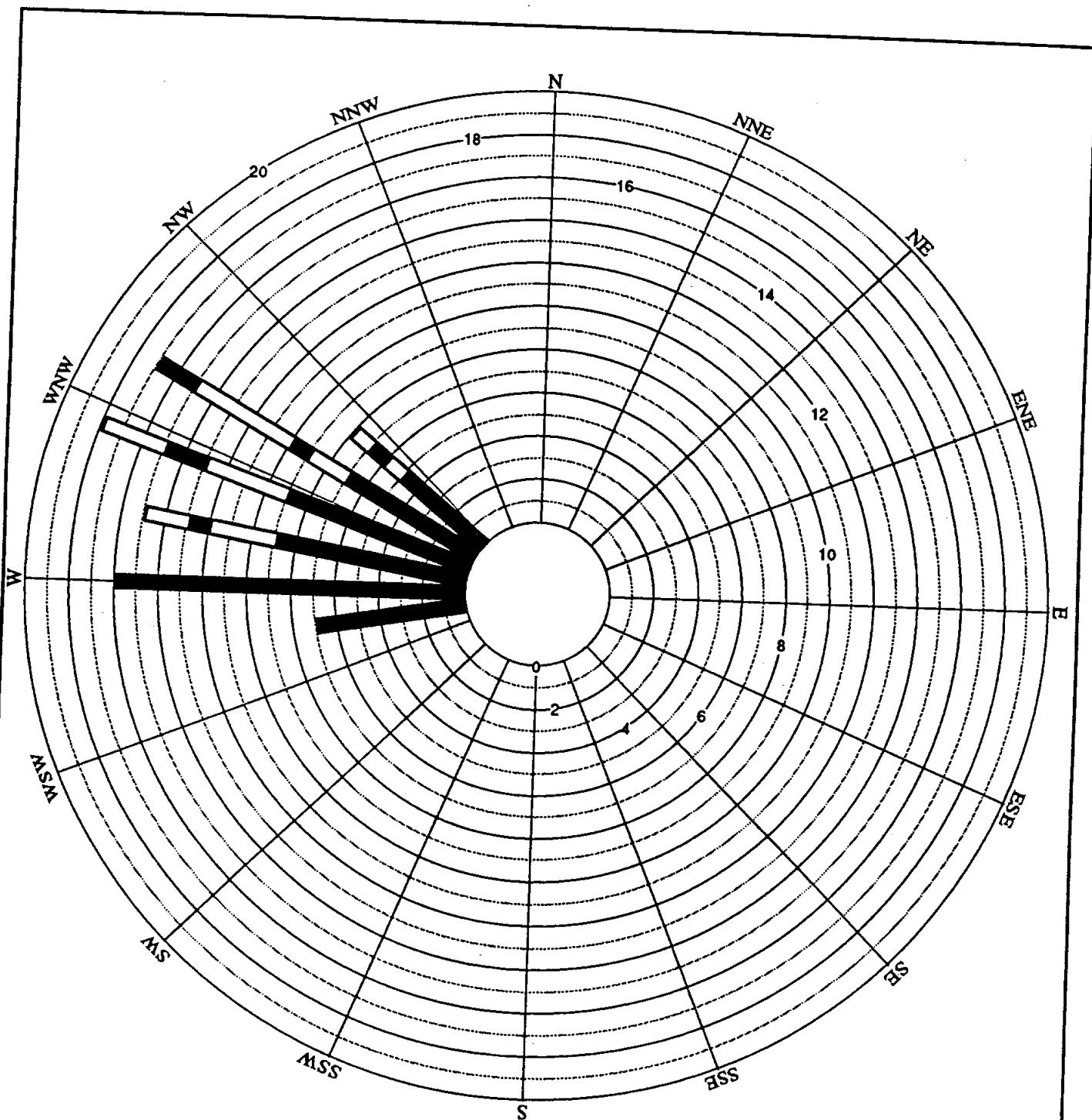


STATION: NSO (AV) SAN FRANCISCO, CA
 DATA SOURCE: NOAA
 PERIOD OF RECORD: AUGUST 7, 1991 - SEPTEMBER 5, 1991
 TYPE OF OBSERVATION: HOURLY 0050 TO 2350 HOURS

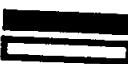


WINDSPEED IN MILES PER HOUR

FIGURE C-7
DAY 7 WINDROSE
HOURLY AVERAGE WINDSPEEDS
AUGUST 27, 1991



STATION: NSO (AV) SAN FRANCISCO, CA
 DATA SOURCE: NOAA
 PERIOD OF RECORD: AUGUST 7, 1991 - SEPTEMBER 5, 1991
 TYPE OF OBSERVATION: HOURLY 0050 TO 2350 HOURS



WINDSPEED IN MILES PER HOUR

FIGURE C-8
DAY 8 WINDROSE
HOURLY AVERAGE WINDSPEEDS
AUGUST 28, 1991

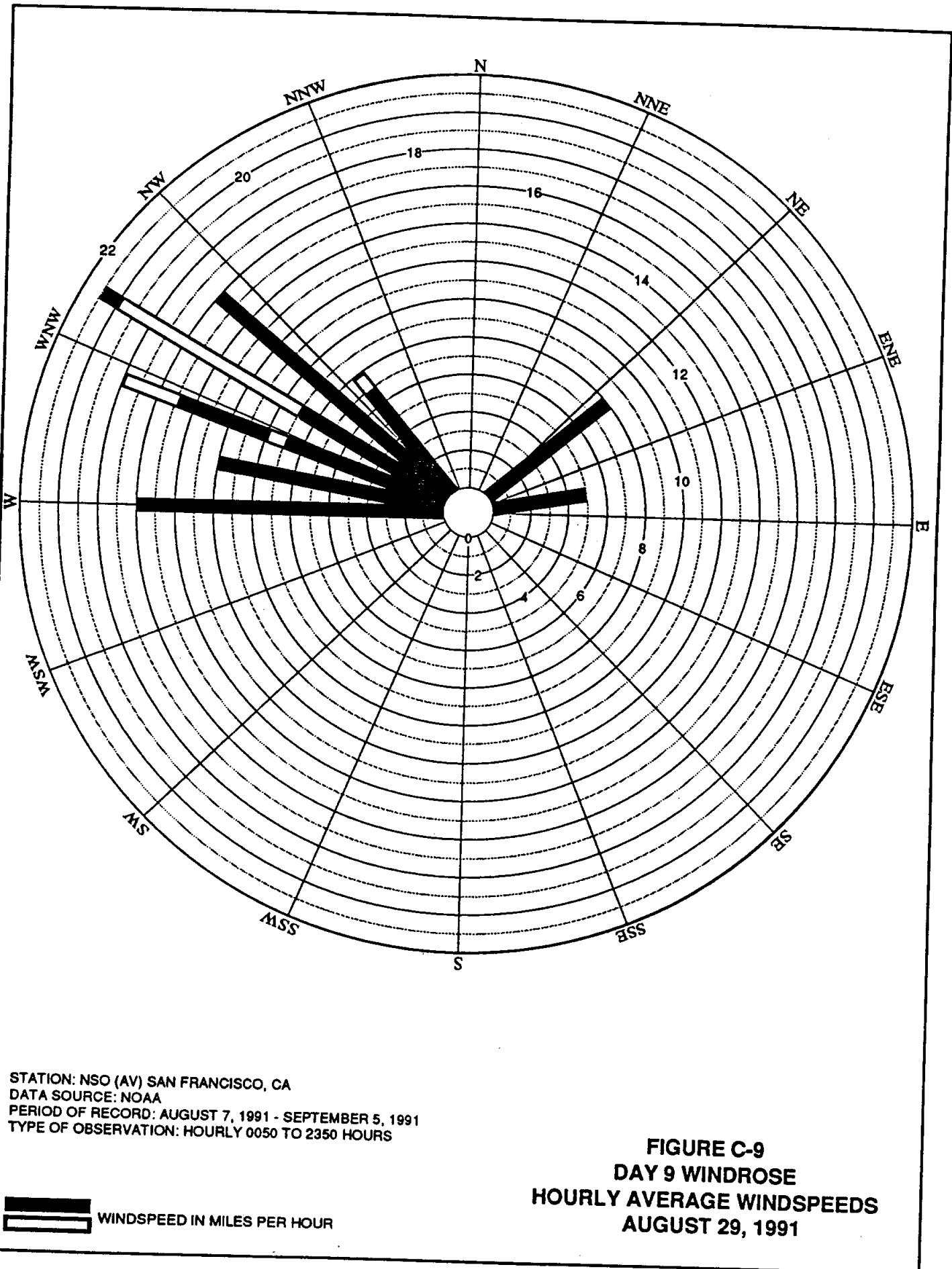
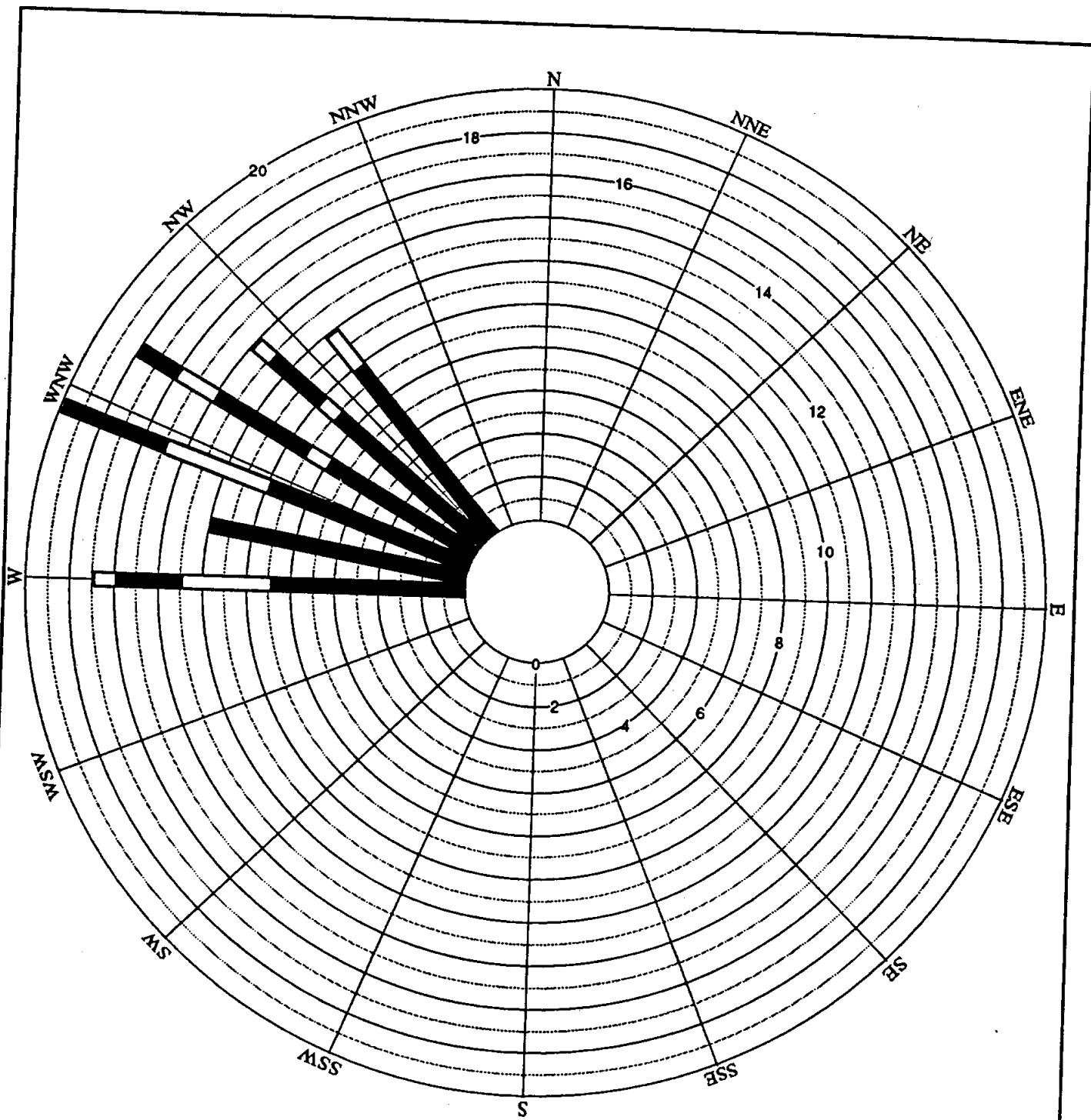
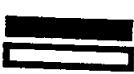


FIGURE C-9
DAY 9 WINDROSE
HOURLY AVERAGE WINDSPEEDS
AUGUST 29, 1991

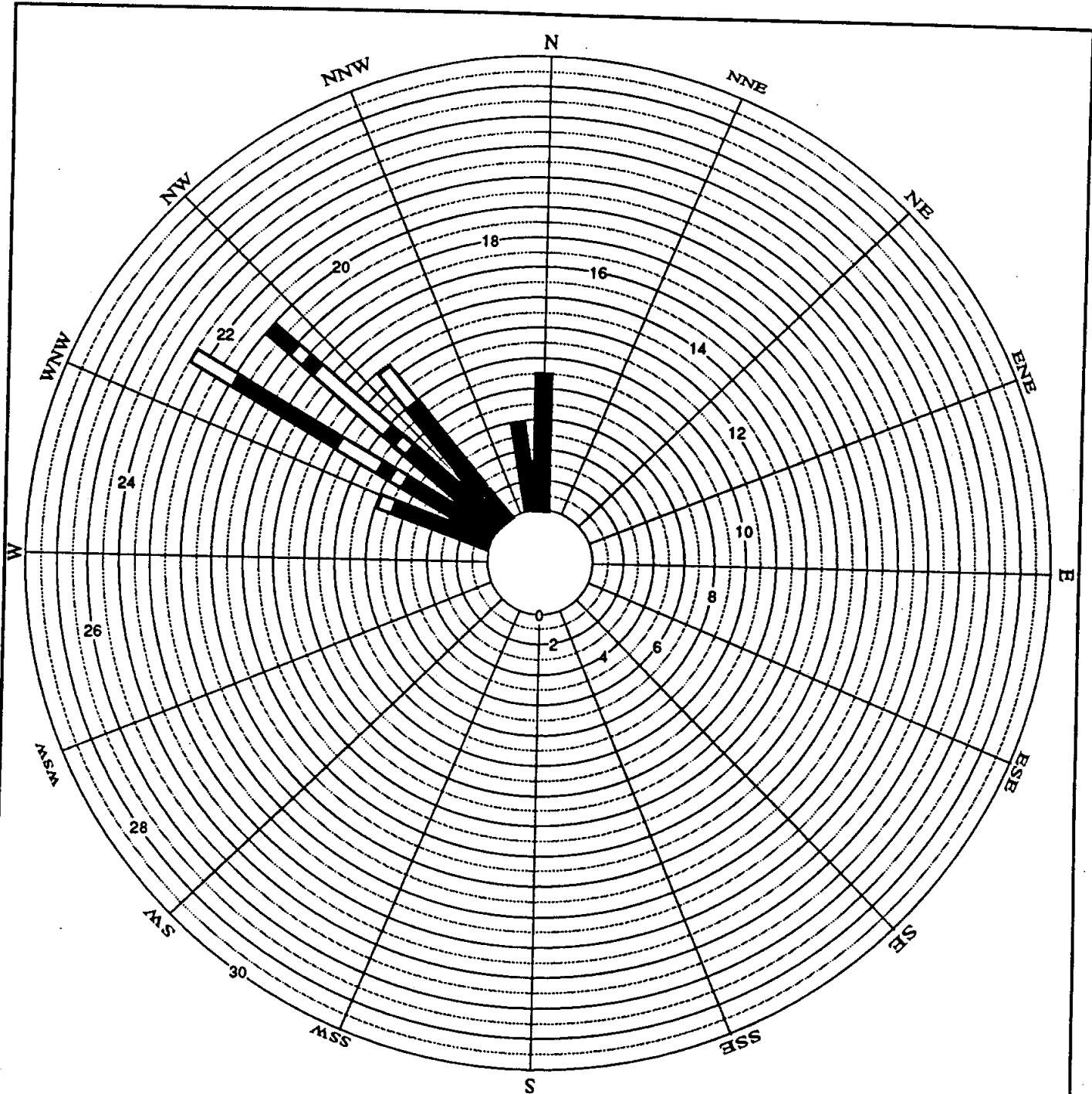


STATION: NSO (AV) SAN FRANCISCO, CA
DATA SOURCE: NOAA
PERIOD OF RECORD: AUGUST 7, 1991 - SEPTEMBER 5, 1991
TYPE OF OBSERVATION: HOURLY 0050 TO 2350 HOURS



WINDSPEED IN MILES PER HOUR

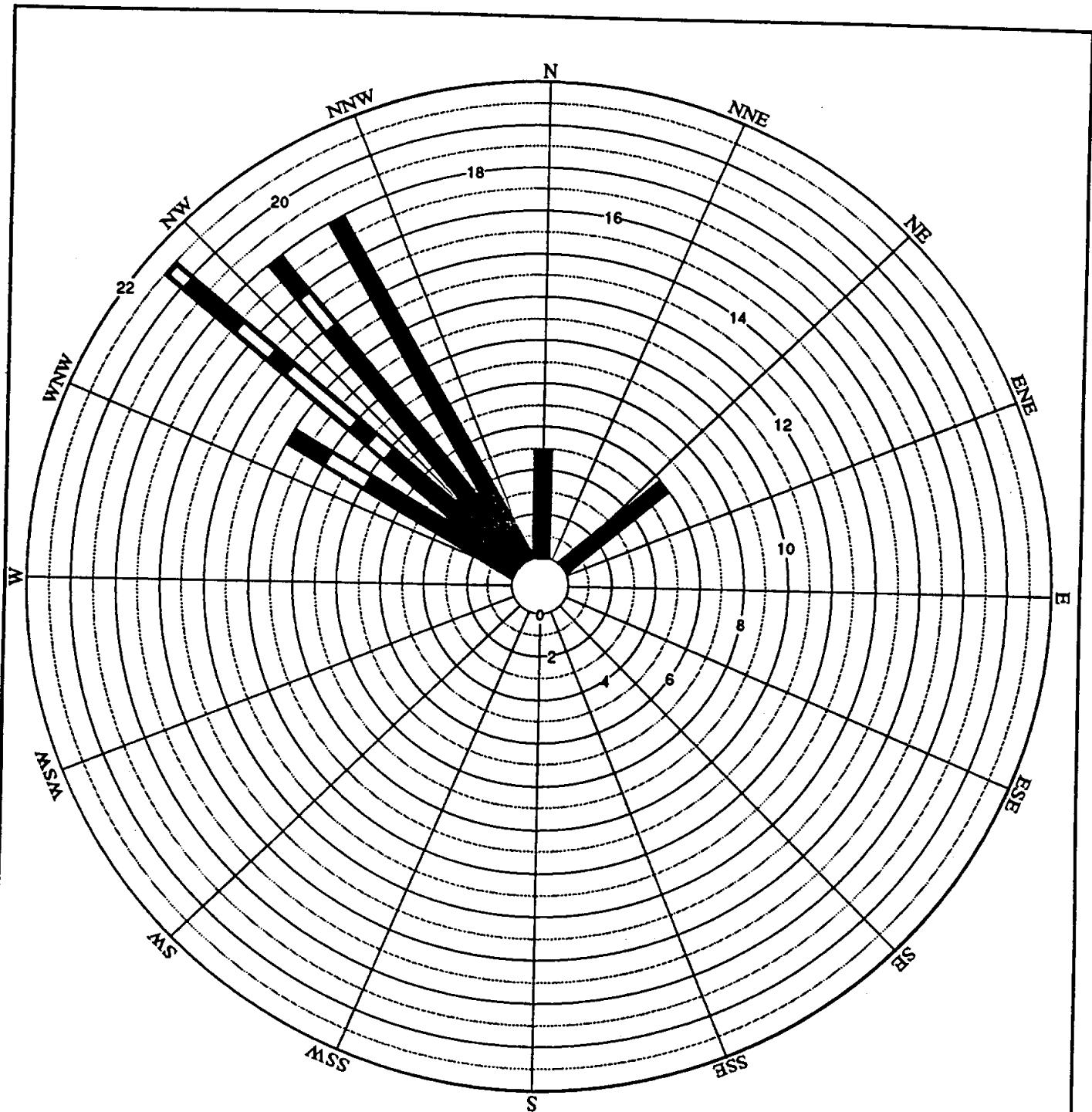
FIGURE C-10
DAY 10 WINDROSE
HOURLY AVERAGE WINDSPEEDS
AUGUST 30, 1991



STATION: NSO (AV) SAN FRANCISCO, CA
DATA SOURCE: NOAA
PERIOD OF RECORD: AUGUST 7, 1991 - SEPTEMBER 5, 1991
TYPE OF OBSERVATION: HOURLY 0050 TO 2350 HOURS

FIGURE C-11
DAY 11 WINDROSE
HOURLY AVERAGE WINDSPEEDS
SEPTEMBER 3, 1991

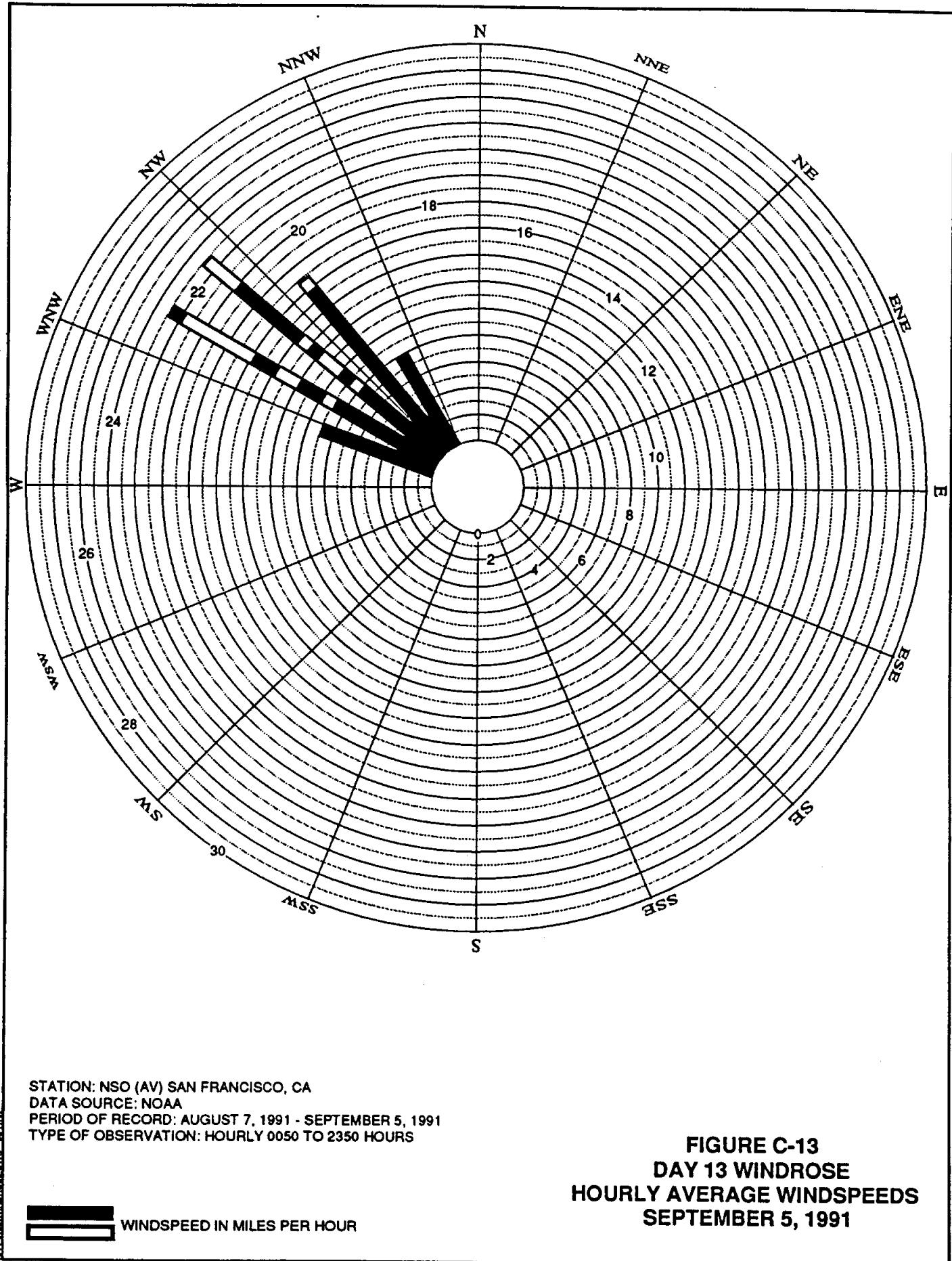
WINDSPEED IN MILES PER HOUR



STATION: NSO (AV) SAN FRANCISCO, CA
DATA SOURCE: NOAA
PERIOD OF RECORD: AUGUST 7, 1991 - SEPTEMBER 5, 1991
TYPE OF OBSERVATION: HOURLY 0050 TO 2350 HOURS

WINDSPEED IN MILES PER HOUR

FIGURE C-12
DAY 12 WINDROSE
HOURLY AVERAGE WINDSPEEDS
SEPTEMBER 4, 1991



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APPENDIX D.1.

RADIOCHEMISTRY DATA

ATTACHMENT 1 RESULTS

TMA

Customer ID No.	Aliquot x 10 ⁷ cc	TMA/Norcal Group No. 8701	Location	Analysis	Results μCi/cc ± 2 σ
1-1	6.332	1✓	A5-A	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
1-2	7.849	2✓	B7-A	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ <2 x 10 ⁻¹⁴
1-3	8.698	3✓	C5-A	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ <2 x 10 ⁻¹⁴
2-1	7.475	8✓	B1-A	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
2-2	8.673	9✓	C9-A	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
2-3	1.0 (2)	10✓	FB-1	Gross Alpha Gross Beta	<2 x 10 ⁻⁷ (1) <5 x 10 ⁻⁷ (1)
3-1	8.588	15✓	B4-B	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
3-3	6.337	17✓	B6-A	Gross Alpha Gross Beta	<3 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
3-4	6.352	18✓	B4-A	Gross Alpha Gross Beta	<2 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
4-1	11.34	22✓	B8-A	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
4-2	11.28	23✓	C4-A	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ (8.6 ± 6.4) x 10 ⁻¹⁵
4-3	11.21	24✓	D8-A	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ <2 x 10 ⁻¹⁴
4-4	11.62	25✓	C7-A	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
4-5	9.451	26✓	D6-A	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
4-6	1.0 (2)	27✓	FB-2	Gross Alpha Gross Beta	<2 x 10 ⁻⁷ (1) <9 x 10 ⁻⁷ (1)
5-1	11.57	29✓	D7-B	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
5-2	1.0 (2)	30✓	FB-3	Gross Alpha Gross Beta	<2 x 10 ⁻⁷ (1) <6 x 10 ⁻⁷ (1)

(1) Units are pCi/sample.

(2) Aliquot = 1.

ATTACHMENT 1 RESULTS

TMA

Customer ID No.	Aliquot x 10 ⁷ cc	TMA/Norcal Group No. 8701	Location	Analysis	Results μCi/cc ± 2 σ
5-3	10.19	31 ✓	B5-A	Gross Alpha Gross Beta	<3 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
6-1	12.82	36 ✓	B9-A	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
6-2	11.48	37 ✓	C7-B	Gross Alpha Gross Beta	<2 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
6-3	11.42	38 ✓	A2-A	Gross Alpha Gross Beta	<3 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
6-4	1.0(2)	39 ✓	FB-4	Gross Alpha Gross Beta	<2 x 10 ⁻⁷ (1) <3 x 10 ⁻⁷ (1)
7-1	10.93	43 ✓	D3-A	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
7-3	11.98	45 ✓	D9-A	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
7-4	11.50	46 ✓	D1-A	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
7-5	1.0(2)	47 ✓	FB-5	Gross Alpha Gross Beta	<1 x 10 ⁻⁷ (1) <3 x 10 ⁻⁷ (1)
8-1	11.37	50 ✓	E2-A	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
8-2	11.00	51 ✓	A4-A	Gross Alpha Gross Beta	<2 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
8-3	12.28	52 ✓	A4-B	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
8-4	11.00	53 ✓	B3-A	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
8-5	11.22	54 ✓	C1-A	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
8-6	1.0(2)	55 ✓	FB-6	Gross Alpha Gross Beta	<1 x 10 ⁻⁷ (1) <3 x 10 ⁻⁷ (1)
9-1	12.01	57 ✓	A3-A	Gross Alpha Gross Beta	<2 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
9-2	9.84	58 ✓	A5-B	Gross Alpha Gross Beta	<3 x 10 ⁻¹⁵ <3 x 10 ⁻¹⁵

(1) Units are pCi/sample.

(2) Aliquot = 1.

ATTACHMENT 1 RESULTS

TMA

Customer ID No.	Aliquot x 10 ⁷ cc	TMA/Norcal Group No. 8701	Location	Analysis	Results μCi/cc ± 2 σ
9-3	12.06	59 ✓	B2-A	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
9-4	11.14	60 ✓	C2-A	Gross Alpha Gross Beta	<2 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
9-5	11.00	61 ✓	D5-A	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
9-6	10.9	62 ✓	E3-A	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
10-1	10.9	64 ✓	A6-A	Gross Alpha Gross Beta	<2 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
10-2	11.01	65 ✓	D4-A	Gross Alpha Gross Beta	<3 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
10-3	11.81	66 ✓	D4-B	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
10-4	11.10	67 ✓	E1-A	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
10-5	11.19	68 ✓	D5-B	Gross Alpha Gross Beta	<3 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
10-6	1.0(2)	69 ✓	FB-7	Gross Alpha Gross Beta	<1 x 10 ⁻⁷ (1) <3 x 10 ⁻⁷ (1)
11-1	11.52	71 ✓	C8-A	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
11-2	11.13	72 ✓	D7-A	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
11-3	11.29	73 ✓	C6-A	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
11-4	11.36	74 ✓	D2-A	Gross Alpha Gross Beta	<1 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
11-5	11.05	75 ✓	C3-A	Gross Alpha Gross Beta	<3 x 10 ⁻¹⁵ <1 x 10 ⁻¹⁴
11-6	1.0(2)	76 ✓	FB-8	Gross Alpha Gross Beta	<2 x 10 ⁻⁷ (1) <3 x 10 ⁻⁷ (1)

(1) Units are pCi/sample.

(2) Aliquot = 1.

CALIBRATION OF GROSS BETA AND GROSS ALPHA COUNTERS

The calibration of the LBG (CE-14) detector system for Sr-Y-90 and the GAW (17,21,24) for Am-241 on 2" filter papers was performed to provide a base calibration for the counting of air filters using the "EPA" basis.

To perform this calibration several 2" filters were prepared. Five (5) were prepared with a solution of Sr-Y-90 in equilibrium and three (3) were prepared using Am-241. The Sr-Y-90 planchets were counted on the LBG (CE-14) beta counters and the Am-241 filters were counted on the GAW gross alpha counters.

For reasons not explained here the alpha (GAW) calculation procedure has factor of ~3 built into the procedure. No provisions have been made in the calculation procedures to correct for the alpha contribution to the beta counters.

A summary of the Calibration follows:

Am-241 GAW eff.

	GAW 17		GAW 21		GAW 24	
	W/sf	W/O sf	W/sf	W/O sf	W/sf	W/O sf
1	.638	.196	.693	.207	.533	.195
2	.631	.197	.716	.214	.656	.198
3	.729	.228	.814	.243	.656	.239
avg	.663	.207	.740	.222	.576	.211

Sr-Y-90 LBG eff.

	1	2	3	4	5	avg
LBG eff	.2614	.2550	.2537	.2924	.2700	.2665

$$\text{P-factor} = 1/\text{Eff} = 1/.2665 = 3.752$$

19-SEP-91
08: 45: 30

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 1

55

1-1

A5-A

Reviewed Date 9-19

0

Counter GAW 21
Length of count 203.2 Min.
Gross counts = 6.

NO SAMPLE WEIGHT

Zero time 236.851 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
240.693	6.	203.2	0.03	0.096	-0.07	-0.23	-0.23

Elapsed time (days) = 3.842
Lambda = 0.000E-01 Reciprocal days
exp(-lambda x t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 0.7400 (recovery = 0.0000 mgs)
Aliquot (4)= 6.3320E+07 cc

Product (1X2X3X4) = 4.685680E+07

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
-4.8999E-09	1.0000	-4.8999E-09		-1.2291E-09	25.08 %

μ Ci /cc

-2.2072E-15 -5.5365E-16

DPM OF ALIQUOT -3.103E-01

Saved answer = -3.103E-01 -25.08% (DPM of aliquot)

$$1.65 \times 5.54 \times 10^{-16} = < 0.9 \times 10^{-15}$$

$$< 1 \times 10^{-15}$$

19-SEP-91
08: 19: 11

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 1 55
1-1 A5-A

Reviewed Date 9-19

0

Counter LBG 9
Length of count 27.5 Min.
Gross counts = 18.

NO SAMPLE WEIGHT

Zero time 222.940 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
222.940	18.	27.5	0.65	0.460	0.19	0.19	0.19

Elapsed time (days) = 0.000
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 1.0000 (recovery = 0.0000 mgs)
Aliquot (4)= 6.3320E+07 cc

Product (1X2X3X4) = 6.332000E+07

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
2.9682E-09	3.7520	1.1137E-08		9.4222E-09	84.61 %

uCi /cc

5.0164E-15 4.2442E-15

DPM OF ALIQUOT 7.052E-01

f

Saved answer = 7.052E-01 84.61% (DPM of aliquot)

$$(1.65 \times 4.24 + 5.02) \times 10^{-15} = < 1.2 \times 10^{-14}$$

$\sim < 1 \times 10^{-14}$

19-SEP-91
08:27:05

TMA Corporation
Gross Alpha Data
AUTOD V 1.03

8701- 2 55
1-2 B7-A

Reviewed Date 9-19

Counter GAW 17
Length of count 94.6 Min.
Gross counts = 2.

NO SAMPLE WEIGHT

Zero time 241.762 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
241.762	2.	94.6	0.02	0.041	-0.02	-0.06	-0.06

Elapsed time (days) = 0.000
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.6620 (recovery = 0.0000 mgs)
Aliquot (4) = 7.8490E+07 cc

Product (1X2X3X4) = 5.196038E+07

C-zero	P-factor	dpm/cc	1 sigma	percent sigma
-1.2267E-09	1.0000	-1.2267E-09	-9.7236E-10	79.27 %

μ Ci /cc

-5.5255E-16 -4.3800E-16

DPM OF ALIQUOT -9.628E-02

Saved answer = -9.628E-02 -79.27% (DPM of aliquot)

$$1.65 \times 4.38 \times 10^{-16} = < 7.2 \times 10^{-16}$$
$$= < 0.7 \times 10^{-15}$$

$$\sim < 1 \times 10^{-15}$$

19-SEP-91
08: 19: 25

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 2

55

1-2

B7-A

Reviewed Date 9-19

0

Counter LBG 10
Length of count 27.5 Min.
Gross counts = 28.

NO SAMPLE WEIGHT

Zero time 222.940 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
222.940	28.	27.5	1.02	0.576	0.44	0.47	0.47

Elapsed time (days) = 0.000
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 7.8490E+07 cc

Product (1X2X3X4) = 7.849000E+07

C-zero	P-factor	dpm/cc	dpm error	percent sigma
6.0140E-09	3.7520	2.2564E-08	1.0460E-08	46.36 %

$\mu\text{Ci} / \text{cc}$

1.0164E-14 4.7119E-15

DPM OF ALIQUOT 1.771E+00

Saved answer = 1.771E+00 46.36% (DPM of aliquot)

$$(1.65 \times 4.712 + \cancel{1.6}) \times 10^{-15} = < 1.79 \times 10^{-14}$$
$$\sim < 2 \times 10^{-14}$$

19-SEP-91
08: 27: 24

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 3
1-3 55
C5-A

Reviewed Date 9-19

0

Counter GAW 17
Length of count 144.7 Min.
Gross counts = 4.

NO SAMPLE WEIGHT

Zero time 240.936 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
240.936	4.	144.7	0.03	0.037	-0.01	-0.03	-0.03

Elapsed time (days) = 0.000
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.6620 (recovery = 0.0000 mgs)
Aliquot (4) = 8.6980E+07 cc

Product (1X2X3X4) = 5.758076E+07

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
-5.2177E-10	1.0000	-5.2177E-10		-8.0956E-10	155.16 %

uCi /cc

-2.3503E-16 -3.6467E-16

DPM OF ALIQUOT -4.538E-02

Saved answer = -4.538E-02 -155.16% (DPM of aliquot)

$$\begin{aligned} 1.65 \times 3.647 \times 10^{-16} &= < 6 \times 10^{-16} \\ &= < 6 \times 10^{-15} \\ &\sim < 1 \times 10^{-15} \end{aligned}$$

19-SEP-91
08: 19: 41

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 3

1-3

55
C5-A

Reviewed Date 9-17

0

Counter LBG 11
Length of count 27.5 Min.
Gross counts = 26.

NO SAMPLE WEIGHT

Zero time 222.940 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
222.940	26.	27.5	0.94	0.495	0.45	0.45	0.45

Elapsed time (days) = 0.000
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 1.0000 (recovery = 0.0000 mgs)
Aliquot (4)= 8.6980E+07 cc

Product (1X2X3X4) = 8.698000E+07

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
5.1281E-09	3.7520	1.9241E-08		8.3346E-09	43.32 %

uCi /cc

8.6670E-15 3.7543E-15

DPM OF ALIQUOT 1.674E+00

Saved answer = 1.674E+00 43.32% (DPM of aliquot)

$$(1.65 \times 3.75 + 8.67) \times 10^{-15} = < 1.48 \times 10^{-14}$$

$\sim < 2 \times 10^{-14}$

19-SEP-91
12: 57: 17

TMA Corporation
Gross Alpha Data
AUTOD V 1.03

8701- 8

2-1

55

B1-A

Reviewed Date 9-19

0

Counter GAW 24
Length of count 144.7 Min.
Gross counts = 7.

NO SAMPLE WEIGHT

Zero time 240.936 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
240.936	7.	144.7	0.05	0.041	0.01	0.02	0.02

Elapsed time (days) = 0.000
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.5760 (recovery = 0.0000 mgs)
Aliquot (4) = 7.4750E+07 cc

Product (1X2X3X4) = 4.305600E+07

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
4.7179E-10	1.0000	4.7179E-10		1.2111E-09	256.71 %

uCi /cc

2.1252E-16 5.4555E-16

DPM OF ALIQUOT 3.527E-02

Saved answer = 3.527E-02 256.71% (DPM of aliquot)

$$(1.65 \times 5.5 + 2.12) \times 10^{-16} = < 1.1 \times 10^{-15}$$

$< 1 \times 10^{-15}$

19-SEP-91
08: 20: 27

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 8 55
2-1 B1-A

Reviewed Date 9-19

O

Counter LBG 11
Length of count 43.7 Min.
Gross counts = 27.

NO SAMPLE WEIGHT

Zero time 234.240 91
Separation time. 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
234.240	27.	43.7	0.62	0.489	0.13	0.13	0.13

Elapsed time (days) = 0.000
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 1.0000 (recovery = 0.0000 mgs)
Aliquot (4)= 7.4750E+07 cc

Product (1X2X3X4) = 7.475000E+07

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
1.7223E-09	3.7520	6.4622E-09		6.6380E-09	102.72 %

uCi /cc

2.9109E-15 2.9901E-15

DPM OF ALIQUOT 4.830E-01

P

Saved answer = 4.830E-01 102.72% (DPM of aliquot)

$$\begin{aligned} (1.65 \times 2.91 + 2.91) \times 10^{-15} &= < 7.8 \times 10^{-15} \\ &= < 7.8 \times 10^{-14} \\ &\sim < 1 \times 10^{-14} \end{aligned}$$

19-SEP-91
08: 45: 09

TMA Corporation
Gross Alpha Data
AUTOD V 1.03

8701- 9

2-2

55
C9-A

Reviewed Date 9-19

0

Counter GAW 21
Length of count 98.3 Min.
Gross counts = 2.

NO SAMPLE WEIGHT

Zero time 236.743 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
240.201	2.	98.3	0.02	0.099	-0.08	-0.27	-0.27

Elapsed time (days) = 3.458
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.7400 (recovery = 0.0000 mgs)
Aliquat (4) = 8.6730E+07 cc

Product (1X2X3X4) = 6.418020E+07

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
-4.2251E-09	1.0000	-4.2251E-09		-1.0026E-09	23.73 %

μ Ci /cc

-1.9032E-15 -4.5162E-16

DPM OF ALIQUOT -3.664E-01

$$\begin{aligned} 1.65 \times 4.516 \times 10^{-16} &= \angle 7.45 \times 10^{-16} \\ &= \angle 7.5 \times 10^{-15} \\ &\sim \angle 1 \times 10^{-15} \end{aligned}$$

19-SEP-91
08: 20: 45

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 9

55

2-2

C9-A

Reviewed Date 9-19

0

Counter LBG 12
Length of count 43.7 Min.
Gross counts = 30.

NO SAMPLE WEIGHT

Zero time 234.240 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
234.240	30.	43.7	0.69	0.584	0.10	0.10	0.10

Elapsed time (days) = 0.000
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 1.0000 (recovery = 0.0000 mgs)
Aliquot (4)= 8.6730E+07 cc

Product (1X2X3X4) = 8.673000E+07

C-zero	P-factor	dpm/cc	dpm error	percent sigma
1.1712E-09	3.7520	4.3944E-09	6.1398E-09	139.72 %

uCi /cc

1.9795E-15 2.7657E-15

DPM OF ALIQUOT 3.811E-01

Saved answer = 3.811E-01 139.72% (DPM of aliquot)

$$\begin{aligned} & (1.65 \times 2.77 + 1.98) \times 10^{-15} = (6.6 \times 10^{-15}) \\ & = 6.6 \times 10^{-14} \\ & \sim 1 \times 10^{-14} \end{aligned}$$

19-SEP-91
08: 27: 43

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 10

2-3

55
FB-1

Reviewed Date 9-19

0

Counter GAW 17
Length of count 106.0 Min.
Gross counts = 8.

NO SAMPLE WEIGHT

Zero time 242.031 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
242.031	8.	106.0	0.08	0.041	0.03	0.11	0.11

Elapsed time (days) = 0.000
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.6620 (recovery = 0.0000 mgs)
Aliquot (4) = 1.000 smpl

Product (1x2x3x4) = 6.620000E-01

C-zero	P-factor	dpm/smpl	dpm error	percent sigma
1.6715E-01	1.0000	1.6715E-01	1.3157E-01	78.71 %

*** UNITS CONVERSION FAILED - INCOMPATIBLE UNITS ***
Check units of aliquot and final answer

DPM OF ALIQUOT 1.672E-01

Saved answer = 1.672E-01 78.71% (DPM of aliquot)

$$\begin{aligned} 1.65 \times 0.132 + 0.167 &= < 0.4 \frac{\text{dpm}}{\text{sample}} \times \frac{\text{fac}}{2.22 \text{dpm}} \times \frac{10^6 \mu\text{Ci}}{\text{pc}} \\ &= < 0.18 \times 10^{-6} \frac{\mu\text{Ci}}{\text{sample}} \\ &= < 1.8 \times 10^{-7} \frac{\mu\text{Ci}}{\text{sample}} \\ &\sim < 2 \times 10^{-7} " \end{aligned}$$

19-SEP-91
08:21:02

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 10

55

2-3

FB-1

Reviewed Date 9-19

0

Counter LBG 13
Length of count 43.7 Min.
Gross counts = 24.

NO SAMPLE WEIGHT

Zero time 234.240 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
234.240	24.	43.7	0.55	0.499	0.05	0.05	0.05

Elapsed time (days) = 0.000
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 1.000 smpl

Product (1X2X3X4) = 1.000000E+00

C-zero	P-factor	dpm/smpl	dpm error	percent sigma
5.3225E-02	3.7520	1.9970E-01	5.0327E-01	252.01 %

1 sigma

*** UNITS CONVERSION FAILED - INCOMPATIBLE UNITS ***
Check units of aliquot and final answer

(1)

DPM OF ALIQUOT 1.997E-01

Saved answer = 1.997E-01 252.01% (DPM of aliquot)

$$\begin{aligned} (1.65 \times 0.503 + 0.199) \frac{\text{dpm}}{\text{smpl}} &= \left(\frac{1.02 \text{dpm}}{\text{smpl}} \times \frac{\text{per}}{2.22 \text{dpm}} \right) \times \frac{10^{-6} \text{mcu}}{\text{per}} \\ &= \left(0.46 \times 10^{-6} \frac{\text{mcu}}{\text{smpl}} \right) \\ &= \left(4.6 \times 10^{-7} \right) \\ &\sim \left(5 \times 10^{-7} \right) \end{aligned}$$

19-SEP-91
12: 57: 31

TMA Corporation
Gross Alpha Data
AUTOD V 1.03

8701- 15 55
3-1 B4-B

Reviewed Date 9-19

Counter GAW 24
Length of count 106.0 Min.
Gross counts = 4.

NO SAMPLE WEIGHT

Zero time 242.031 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
242.031	4.	106.0	0.04	0.046	-0.01	-0.02	-0.02

Elapsed time (days) = 0.000
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.5760 (recovery = 0.0000 mgs)
Aliquot (4) = 8.5880E+07 cc

Product (1X2X3X4) = 4.946688E+07

C-zero	P-factor	dpm/cc	dpm error	percent sigma
-4.5959E-10	1.0000	-4.5959E-10	-1.0933E-09	237.88 %

$\mu\text{Ci}/\text{cc}$

-2.0702E-16 -4.9247E-16

DPM OF ALIQUOT -3.947E-02

Saved answer = -3.947E-02 -237.88% (DPM of aliquot)

$$\begin{aligned} 1.65 \times 4.9247 \times 10^{-16} &= < 8.13 \times 10^{-16} \\ &= < 8 \times 10^{-15} \\ &\sim < 1 \times 10^{-15} \end{aligned}$$

19-SEP-91
08:22:14

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 15 55
3-1 B4-B
Reviewed Date 9-19

O

Counter LBG 14
Length of count 43.7 Min.
Gross counts = 27.

NO SAMPLE WEIGHT

Zero time 234.240 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
234.240	27.	43.7	0.62	0.591	0.03	0.03	0.03

Elapsed time (days) = 0.000
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 8.5880E+07 cc

Product (1X2X3X4) = 8.588000E+07

C-zero	P-factor	dpm/cc	dpm error	percent sigma
3.4278E-10	3.7520	1.2861E-09	6.5650E-09	510.45 %
		uCi /cc		
		5.7933E-16	2.9572E-15	

DPM OF ALIQUOT 1.105E-01

Saved answer = 1.105E-01 510.45% (DPM of aliquot)

$$(1.65 \times 2.96 + 0.58) \times 10^{-15} = < 5.5 \times 10^{-15}$$

~~6×10^{-15}~~

$$= < .55 \times 10^{-14}$$
$$\sim < 1 \times 10^{-14}$$

19-SEP-91
08:46:34

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 17

3-3

55
B4-A

Reviewed Date 9-19

0

Counter GAW 21
Length of count 101.8 Min.
Gross counts = 13.

NO SAMPLE WEIGHT

Zero time 241.141 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
241.141	13.	101.8	0.13	0.096	0.03	0.11	0.11

Elapsed time (days) = 0.000
Lambda = 0.000E-01 Reciprocal days
exp(-lambda x t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 0.7400 (recovery = 0.0000 mgs)
Aliquot (4)= 6.3370E+07 cc

Product (1X2X3X4) = 4.689380E+07

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
2.3350E-09	1.0000	2.3350E-09		2.7433E-09	117.49 %

uCi /cc

1.0518E-15 1.2357E-15

DPM OF ALIQUOT 1.480E-01

Saved answer = 1.480E-01 117.49% (DPM of aliquot)

$$(1.65 \times 1.236 + 1.05) \times 10^{-15} = < 3.1 \times 10^{-15}$$

$\sim < 3 \times 10^{-15}$

19-SEP-91
08: 22: 41

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 17

3-3

55
B4-A

Reviewed Date 9-19

0

Counter LBG 15
Length of count 43.7 Min.
Gross counts = 26.

NO SAMPLE WEIGHT

Zero time 234.240 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
234.240	26.	43.7	0.60	0.612	-0.02	-0.02	-0.02

Elapsed time (days) = 0.000
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 6.3370E+07 cc

Product (1X2X3X4) = 6.337000E+07

C-zero	P-factor	dpm/cc	dpm error	percent sigma
-2.7615E-10	3.7520	-1.0361E-09	-8.5250E-09	822.79 %

μ Ci /cc

-4.6671E-16 -3.8401E-15

DPM OF ALIQUOT -6.566E-02

Saved answer = -6.566E-02 -822.79% (DPM of aliquot)

$$\begin{aligned} 1.65 \times 3.84 \times 10^{-15} &= \angle 6.3 \times 10^{-15} \\ &= \angle 6.3 \times 10^{-14} \\ &\sim \angle 1 \times 10^{-14} \end{aligned}$$

19-SEP-91
12:57:47

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 18

3-4

55

B4-A

Reviewed Date 9-19

Counter
Length of count GAW 24
Gross counts = 101.8 Min.
 5.

NO SAMPLE WEIGHT

Zero time 241.141 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
241.141	5.	101.8	0.05	0.041	0.01	0.02	0.02

Elapsed time (days) = 0.000
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 0.5760 (recovery = 0.0000 mgs)
Aliquot (4)= 6.3520E+07 cc

Product (1X2X3X4) = 3.658752E+07

C-zero	P-factor	dpm/cc	1 sigma
6.1090E-10	1.0000	6.1090E-10	dpm error percent sigma
			1.6943E-09 277.35 %
		uCi /cc	

2.7518E-16 7.6321E-16

DPM OF ALIQUOT 3.880E-02

Saved answer = 3.880E-02 277.35% (DPM of aliquot)

$$(1.65 \times 7.63 + 2.75) \times 10^{-16} = < 1.53 \times 10^{-15}$$
$$\sim < 2 \times 10^{-15}$$

19-SEP-91
08: 22: 55

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 18

3-4

55
B4-A

Reviewed Date 9-19

Counter 0
Length of count LBG 16
Gross counts = 43.7 Min.
20.

NO SAMPLE WEIGHT

Zero time 234.240 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
234.240	20.	43.7	0.46	0.492	-0.03	-0.04	-0.04

Elapsed time (days) = 0.000
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 1.0000 (recovery = 0.0000 mgs)
Aliquot (4)= 6.3520E+07 cc

Product (1X2X3X4) = 6.352000E+07

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
-5.5495E-10	3.7520	-2.0822E-09		-7.2115E-09	346.34 %
		uCi /cc			
		-9.3792E-16		-3.2484E-15	

DPM OF ALIQUOT -1.323E-01

Saved answer = -1.323E-01 -346.34% (DPM of aliquot)

$$\begin{aligned} 1.65 \times 3.25 \times 10^{-15} &= \angle 5.36 \times 10^{-15} \\ &= \angle .54 \times 10^{-14} \\ &\sim \angle 1 \times 10^{-14} \end{aligned}$$

19-SEP-91
08:28:17

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 22

4-1

55
BB-A

Reviewed J Date 9-19

0

Counter
Length of count GAW 17
Gross counts = 91.3 Min.
 4.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
241.219	4.	91.3	0.04	0.037	0.01	0.02	0.02

Elapsed time (days) = 20.927
Lambda = 0.000E-01 Reciprocal days
exp(-lambda x t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 0.6620 (recovery = 0.0000 mgs)
Aliquot (4)= 1.1340E+08 cc

Product (1X2X3X4) = 7.507080E+07

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
2.9238E-10	1.0000	2.9238E-10		9.5653E-10	327.15 %

uCi /cc

1.3170E-16 4.3087E-16

DPM OF ALIQUOT 3.316E-02

Saved answer = 3.316E-02 327.15% (DPM of aliquot)

$$\begin{aligned} (1.65 \times 4.309 + 1.317) \times 10^{-16} &= < 8.4 \times 10^{-16} \\ &= < 8 \times 10^{-15} \\ &\sim < 1 \times 10^{-15} \end{aligned}$$

19-SEP-91
08:23:33

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 22

4-1

55
BB-A

Reviewed Date 9-19

Counter LBG 9
Length of count 31.4 Min.
Gross counts = 21.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
234.249	21.	31.4	0.67	0.481	0.19	0.18	0.18

Elapsed time (days) = 13.957
Lambda = 0.000E-01 Reciprocal days
exp(-lambda x t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 1.0000 (recovery = 0.0000 mgs)
Aliquot (4)= 1.1340E+08 cc

Product (1X2X3X4) = 1.134000E+08

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
1.5764E-09	3.7520	5.9146E-09		4.9472E-09	83.64 %

uCi /cc

2.6642E-15 2.2285E-15

DPM OF ALIQUOT 6.707E-01

Saved answer = 6.707E-01 83.64% (DPM of aliquot)

$$(1.65 \times 2.23 + 2.66) \times 10^{-15} = < 6.3 \times 10^{-15}$$
$$= < 6 \times 10^{-14}$$
$$\sim < 1 \times 10^{-14}$$

19-SEP-91
08:46:49

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 23

4-2

55
C4-A

Reviewed Date 9-19

O

Counter
Length of count GAW 21
Gross counts = 91.3 Min.
 9.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
241.219	9.	91.3	0.10	0.096	0.00	0.01	0.01

Elapsed time (days) = 20.927
Lambda = 0.000E-01 Reciprocal days
exp(-lambda x t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 0.7400 (recovery = 0.0000 mgs)
Aliquot (4)= 1.1280E+08 cc

Product (1X2X3X4) = 8.347200E+07

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
1.0883E-10	1.0000	1.0883E-10	1.4415E-09	1324.52 %	

uCi /cc

4.9024E-17 6.4933E-16

DPM OF ALIQUOT 1.228E-02

Saved answer = 1.228E-02 1324.52% (DPM of aliquot)

$$(1.65 \times 6.49 + 0.49) \times 10^{-16} = < 1.11 \times 10^{-16}$$
$$= < 1.1 \times 10^{-15}$$
$$\sim < 1 \times 10^{-15}$$

19-SEP-91
08: 23: 50

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 23

4-2

55
C4-A

Reviewed Date 9-19

Counter LBG 10
Length of count 31.4 Min.
Gross counts = 36.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
234.249	36.	31.4	1.15	0.593	0.55	0.58	0.58

Elapsed time (days) = 13.957
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda \times t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1280E+08 cc

Product (1X2X3X4) = 1.128000E+08

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
5.0998E-09	3.7520	1.9134E-08		7.0516E-09	36.85 %

$\mu\text{Ci}/\text{cc}$

8.6191E-15 3.1764E-15

DPM OF ALIQUOT 2.158E+00

Saved answer = 2.158E+00 36.85% (DPM of aliquot)

$(8.6 \pm 6.4) \times 10^{-15}$

19-SEP-91
12: 58: 01

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 24

4-3

55
DB-4

Reviewed Date 9-19

0
Counter
Length of count GAW 24
Gross counts = 91.3 Min.
3.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
241.219	3.	91.3	0.03	0.041	-0.01	-0.02	-0.02

Elapsed time (days) = 20.927
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.5760 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1210E+08 cc

Product (1X2X3X4) = 6.456960E+07

C-zero	P-factor	dpm/cc	1 sigma
-3.4647E-10	1.0000	-3.4647E-10	dpm error percent sigma
		uCi /cc	241.39 %

DPM OF ALIQUOT -3.884E-02 -1.5607E-16 -3.7673E-16

Saved answer = -3.884E-02 -241.39% (DPM of aliquot)

$$\begin{aligned} 1.65 \times 3.767 \times 10^{-16} &= \angle 6.2 \times 10^{-16} \\ &= \angle 6 \times 10^{-15} \\ &\sim \angle 1 \times 10^{-15} \end{aligned}$$

19-SEP-91
08:24:08

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701-24

4-3

55
DB-

Reviewed Date 9-11

O

Counter
Length of count LBG 3
Gross counts = 28.0 Min.
18.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
235.251	18.	28.0	0.64	0.447	0.19	0.20	0.20

Elapsed time (days) = 14.959
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1210E+08 cc

Product (1X2X3X4) = 1.121000E+08

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
1.8225E-09	3.7520	6.8379E-09	5.6310E-09	82.35 %	

uCi /cc 3.0801E-15 2.5365E-15

DPM OF ALIQUOT 7.665E-01

Saved answer = 7.665E-01 82.35% (DPM of aliquot)

$$(1.65 \times 2.537 + 3.08) \times 10^{-15} = < 7.26 \times 10^{-15}$$
$$= < 7 \times 10^{-14}$$
$$\sim < 1 \times 10^{-14}$$

19-SEP-91
08: 28: 32

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 25

4-4

55

C7-A

0

Reviewed Date 9-19

Counter
Length of count GAW 17
Gross counts = 102.0 Min.
2.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
242.111	2.	102.0	0.02	0.041	-0.02	-0.07	-0.07

Elapsed time (days) = 21.819
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 0.6620 (recovery = 0.0000 mgs)
Aliquot (4)= 1.1620E+08 cc

Product (1X2X3X4) = 7.692440E+07

C-zero	P-factor	dpm/cc	1 sigma
-8.9252E-10	1.0000	-8.9252E-10	dpm error percent sigma
			-6.1402E-10 68.80 %

uCi /cc

-4.0204E-16 -2.7659E-16

DPM OF ALIQUOT -1.037E-01

Saved answer = -1.037E-01 -68.80% (DPM of aliquot)

$$\begin{aligned} 1.65 \times 2.766 \times 10^{-16} &= \angle 4.6 \times 10^{-15} \\ &= \angle 4.6 \times 10^{-15} \\ &\sim \angle 1 \times 10^{-15} \end{aligned}$$

19-SEP-91
08: 24: 24

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 25

4-4

55
C7-A

Reviewed Date 9-19

0

Counter
Length of count LBG 4
Gross counts = 28.0 Min.
27.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
235.251	27.	28.0	0.96	0.630	0.33	0.33	0.33

Elapsed time (days) = 14.959
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 1.0000 (recovery = 0.0000 mgs)
Aliquot (4)= 1.1620E+08 cc

Product (1X2X3X4) = 1.162000E+08

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
2.8793E-09	3.7520	1.0803E-08		6.4947E-09	60.12 %

uCi /cc

4.8663E-15 2.9255E-15

DPM OF ALIQUOT 1.255E+00

Saved answer = 1.255E+00 60.12% (DPM of aliquot)

$$\begin{aligned} (1.65 \times 2.93 + 4.87) \times 10^{-15} &= (9.7 \times 10^{-15}) \\ &= (9.7 \times 10^{-14}) \\ &\approx 1 \times 10^{-14} \end{aligned}$$

19-SEP-91
12: 58: 16

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 26

4-5

55
D6-A

Reviewed

Date 9-19

Counter 0
Length of count GAW 24
Gross counts = 102.0 Min.
5.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
242.111	5.	102.0	0.05	0.046	0.00	0.01	0.01

Elapsed time (days) = 21.819
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.5760 (recovery = 0.0000 mgs)
Aliquot (4) = 9.4510E+07 cc

Product (1X2X3X4) = 5.443776E+07

C-zero P-factor
1.5308E-10 1.0000

dpm/cc
1.5308E-10

1 sigma
dpm error percent sigma
1.1426E-09 746.42 %

uCi /cc

6.8955E-17 5.1470E-16

DPM OF ALIQUOT 1.447E-02

Saved answer = 1.447E-02 746.42% (DPM of aliquot)

$$(1.65 \times 5.147 + 0.689) \times 10^{-16} = < 9.18 \times 10^{-16}$$
$$= < 9 \times 10^{-15}$$
$$\sim < 1 \times 10^{-15}$$

19-SEP-91
08: 24: 41

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 26

4-5

55
D6-A

Reviewed Date 9-19

Counter 0
Length of count LBG 3
Gross counts = 24.5 Min.
17.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
236.906	17.	24.5	0.69	0.447	0.25	0.26	0.26

Elapsed time (days) = 16.614
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 9.4510E+07 cc

Product (1X2X3X4) = 9.451000E+07

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
2.7235E-09	3.7520	1.0218E-08		7.3223E-09	71.66 %

uCi /cc

4.6029E-15 3.2983E-15

DPM OF ALIQUOT 9.657E-01

Saved answer = 9.657E-01 71.66% (DPM of aliquot)

$$(1.65 \times 3.298 + 4.603) \times 10^{-15} = < 10.0 \times 10^{-15}$$
$$= < 1 \times 10^{-14}$$

19-SEP-91
08: 28: 47

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 27

4-6

55

FB-2

Reviewed Date 9-19

0

Counter GAW 17
Length of count 106.5 Min.
Gross counts = 0.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
242.182	0.	106.5	0.00	0.041	-0.04	-0.13	-0.13

Elapsed time (days) = 21.890
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.6620 (recovery = 0.0000 mgs)
Aliquot (4) = 1.000 smpl

Product (1x2x3x4) = 6.620000E-01

C-zero	P-factor	dpm/smpl	1 sigma
-1.9881E-01	1.0000	<u>-1.9881E-01</u>	dpm error percent sigma
			-2.3857E-02 12.00 %

*** UNITS CONVERSION FAILED - INCOMPATIBLE UNITS ***
Check units of aliquot and final answer

DPM OF ALIQUOT -1.988E-01

Saved answer = -1.988E-01 -12.00% (DPM of aliquot)

$$\begin{aligned} 1.65 \times 0.0239 &= < 0.039 \frac{\text{dpm}}{\text{sample}} \times \frac{\text{PC}}{2.22 \text{dpm}} \times \frac{10^{-6} \text{MCi}}{\text{PCi}} \\ &= < 0.02 \times 10^{-6} \frac{\text{MCi}}{\text{sample}} \\ &= < 2 \times 10^{-8} " \end{aligned}$$

19-SEP-91
08:25:10

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 27

4-6

55
FB-2

Reviewed Date 9-19

0

Counter LBG 4
Length of count 24.5 Min.
Gross counts = 20.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
236.906	20.	24.5	0.82	0.630	0.19	0.19	0.19

Elapsed time (days) = 16.614
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 1.0000 (recovery = 0.0000 mgs)
Aliquot (4)= 1.000 smp1

Product (1X2X3X4) = 1.000000E+00

C-zero	P-factor	dpm/smpl	1 sigma	dpm error	percent sigma
1.8529E-01	3.7520	6.9521E-01		7.3929E-01	106.34 %

*** UNITS CONVERSION FAILED - INCOMPATIBLE UNITS ***
Check units of aliquot and final answer

DPM OF ALIQUOT 6.952E-01

Saved answer = 6.952E-01 106.34% (DPM of aliquot)

$$1.65 \times 0.739 + 0.695 = < 1.9 \frac{\text{dpm}}{\text{sample}} \times \frac{\text{per}}{2.22 \text{dpm}} \times 10^6 \frac{\mu\text{Ci}}{\text{tex}}$$
$$= < 8.6 \times 10^{-6} \frac{\mu\text{Ci}}{\text{sample}}$$
$$= < 8.6 \times 10^{-7} "$$
$$\sim < 9 \times 10^{-7}$$

19-SEP-91
12: 58: 31

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 29

5-1

55
D7-B

Reviewed Date 9-19

O

Counter
Length of count GAW 24
Gross counts = 106.5 Min.
1.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
242.182	1.	106.5	0.01	0.046	-0.04	-0.10	-0.10

Elapsed time (days) = 21.890
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.5760 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1570E+08 cc

Product (1X2X3X4) = 6.664320E+07

C-zero	P-factor	dpm/cc	1 sigma
-1.5113E-09	1.0000	-1.5113E-09	dpm error percent sigma
			-4.4956E-10 29.75 %

uCi /cc

-6.8078E-16 -2.0250E-16

DPM OF ALIQUOT -1.749E-01

Saved answer = -1.749E-01 -29.75% (DPM of aliquot)

P

$$1.65 \times 2.025 \times 10^{-16} = 3.34 \times 10^{-16}$$

$$= 3 \times 10^{-15}$$

$$\sim 1 \times 10^{-15}$$

19-SEP-91
08:25:39

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 29

5-1

55
D7-B

Reviewed Date 9-19

0

Counter
Length of count LBG 6
Gross counts = 21.9 Min.
 20.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
236.942	20.	21.9	0.91	0.608	0.30	0.28	0.28

Elapsed time (days) = 16.650
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1570E+08 cc

Product (1X2X3X4) = 1.157000E+08

C-zero	P-factor	dpm/cc	1 sigma
2.4559E-09	3.7520	9.2146E-09	dpm error percent sigma
		6.5714E-09	71.32 %

uCi /cc

4.1507E-15 2.9601E-15

DPM OF ALIQUOT 1.066E+00

Saved answer = 1.066E+00 71.32% (DPM of aliquot)

$$(1.65 \times 2.96 + 4.15) \times 10^{-15} = < 9.03 \times 10^{-15}$$
$$= < 9 \times 10^{-14}$$
$$\sim < 1 \times 10^{-14}$$

19-SEP-91
12: 58: 47

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 30

5-2

55

FB-3

Reviewed Date 9-19

0

Counter
Length of count GAW 24
Gross counts = 102.2 Min.
 8.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
243.031	8.	102.2	0.08	0.025	0.05	0.15	0.15

Elapsed time (days) = 22.739
Lambda = 0.000E-01 Reciprocal days
exp(-lambda x t) (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.5760 (recovery = 0.0000 mgs)
Aliquot (4) = 1.000 smpl

Product (1X2X3X4) = 5.760000E-01

C-zero	P-factor	dpm/smpl	1 sigma	dpm error	percent sigma
2.5398E-01	1.0000	2.5398E-01		1.3269E-01	52.24 %

*** UNITS CONVERSION FAILED - INCOMPATIBLE UNITS ***
Check units of aliquot and final answer

DPM OF ALIQUOT 2.540E-01

Saved answer = 2.540E-01 52.24% (DPM of aliquot)

~~1.65X0.133~~

$$1.65 \times 0.133 + 0.254 = < 0.47 \frac{\text{dpm}}{\text{sample}} \times \frac{2.22 \frac{\text{dpm}}{\text{sample}}}{\text{2.22 dpm}} \times 10^{-6} \frac{\text{mci}}{\text{dpm}}$$
$$< 0.2 \times 10^{-6} \frac{\text{mci}}{\text{sample}}$$
$$< 2 \times 10^{-7}$$

19-SEP-91
08: 25: 55

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 30

5-2

55
FB-3

Reviewed Date 9-19

O

Counter LBG 3
Length of count 21.9 Min.
Gross counts = 11.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
241.235	11.	21.9	0.50	0.441	0.06	0.06	0.06

Elapsed time (days) = 20.943
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 1.0000 (recovery = 0.0000 mgs)
Aliquot (4)= 1.000 smpl

Product (1X2X3X4) = 1.000000E+00

C-zero	P-factor	dpm/smpl	1 sigma	dpm error	percent sigma
6.4513E-02	3.7520	2.4205E-01		6.2735E-01	259.18 %

*** UNITS CONVERSION FAILED - INCOMPATIBLE UNITS ***
Check units of aliquot and final answer

DPM OF ALIQUOT 2.421E-01

Saved answer = 2.421E-01 259.18% (DPM of aliquot)

$$\begin{aligned} 1.65 \times 0.627 + 0.242 &= < 1.28 \frac{\text{dpm}}{\text{smpl}} \times \frac{\text{Per}}{2.22 \text{dpm}} \times 10^6 \frac{\mu\text{Ci}}{\text{lit}} \\ &= < 0.58 \times 10^6 \frac{\mu\text{Ci}}{\text{smpl}} \\ &= < 5.8 \times 10^7 \\ &\sim < 6 \times 10^7 \end{aligned}$$

23-SEP-91
10: 52: 29

TMA Corporation
Gross Alpha Data
AUTOD V 1.03

8701- 31

5-3 55
B5-A

Reviewed Date 9-24

O

Counter GAW 17
Length of count 59.7 Min.
Gross counts = 6.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKED	NET CPM	ADJUSTED CPM	CORRECTED CPM
261.181	6.	59.7	0.10	0.042	0.06	0.19	0.19

Elapsed time (days) = 40.889
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.6620 (recovery = 0.0000 mgs)
Aliquot (4) = 1.0190E+08 cc

Product (1X2X3X4) = 6.745780E+07

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
2.7821E-09	1.0000	2.7821E-09	1.9656E-09	70.65 %	

uCi /cc

1.2532E-15 8.8540E-16

DPM OF ALIQUOT 2.835E-01

Saved answer = 2.835E-01 70.65% (DPM of aliquot)

$$\begin{aligned} & \cancel{+65 \times 10^{-2}} \\ & (1.65 \times 8.85 + 12.5) \times 10^{-16} = < 2.7 \times 10^{-15} \\ & = < 2.7 \times 10^{-15} \\ & \sim < 3 \times 10^{-15} \end{aligned}$$

23-SEP-91
10:46:11

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 31

5-3

55
BS-A

Reviewed Date 9-24

Counter 0
Length of count LBG 9
Gross counts = 60.5 Min.
58.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
263.236	58.	60.5	0.96	0.504	0.45	0.43	0.43

Elapsed time (days) = 42.944
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 1.0000 (recovery = 0.0000 mgs)
Aliquot (4)= 1.0190E+08 cc

Product (1X2X3X4) = 1.019000E+08

C-zero 4.2478E-09	P-factor 3.7520	dpm/cc 1.5938E-08	1 sigma dpm error 4.8954E-09	percent sigma 30.72 %
uCi /cc				

7.1792E-15 2.2051E-15

DPM OF ALIQUOT 1.624E+00

Saved answer = 1.624E+00 30.72% (DPM of aliquot)

$$(7.18 \pm 4.41) \times 10^{-15}$$
$$\sim (7.2 \pm 4.4) \times 10^{-15}$$

BECAUSE OF SMALL COUNT RATE
LESS THAN VALUE IS REPORTED

$$(1.65 \times 2.2051 + 7.1792) E-15 = (10.82 E-15)$$
$$= (1.1 E-14)$$

24-SEP-91
11:51:47

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 36

6-1

55
B9-A

Reviewed QH Date 10/4

0

Counter GAN 24
Length of count 59.7 Min.
Gross counts = 3.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0



Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
261.181	3.	59.7	0.05	0.079	-0.03	-0.08	-0.08

Elapsed time (days) = 40.889
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 0.5760 (recovery = 0.0000 mgs)
Aliquot (4)= 1.2620E+08 cc

Product (1X2X3X4) = 7.384320E+07

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
-1.0860E-09	1.0000	-1.0660E-09	-1.1323E-09	106.22 %	

$\mu\text{Ci}/\text{cc}$

-4.8020E-16 -5.1005E-16

DPM OF ALIQUOT -1.367E-01

Saved answer = -1.367E-01 -106.22% (DPM of aliquot)

J

$$(1.65 \times 5.1) E-16 = < 8.4 \times 10^{-16}$$
$$\therefore < .8 \times 10^{-15}$$
$$\sim < 1 \times 10^{-15}$$

23-SEP-91
10:46:30

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 36

55
6-1 B9-A

0

Reviewed Date 9-24

Counter LBG 10
Length of count 60.5 Min.
Gross counts = 58.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
263.236	58.	60.5	0.96	0.589	0.37	0.38	0.38

Elapsed time (days) = 42.944
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 1.2820E+08 cc 12.82×10^7

Product (1X2X3X4) = 1.282000E+08

C-zero	P-factor	dpm/cc	1 sigma
2.9672E-09	3.7520	1.1133E-08	dpm error percent sigma
		4.3477E-09	39.05 %

uCi /cc

5.0149E-15 1.9584E-15

DPM OF ALIQUOT 1.427E+00

Saved answer = 1.427E+00 39.05% (DPM of aliquot)

$(5.0 \pm 3.9) E-15$

BECAUSE OF SMALL COUNT RATE
LESS THAN VALUE IS REPORTED
 $(1.65 \times 1.9584 + 5.0149) E-15$
 $= 1.8 \times 10^{-14}$
 $\sim 1 \times 10^{-14}$

23-SEP-91
10: 52: 52

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 37

6-2 55
C7-B

Reviewed Date 9-24

0

Counter GAW 17
Length of count 57.7 Min.
Gross counts = 4.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKCD	NET CPM	ADJUSTED CPM	CORRECTED CPM
261.223	4.	57.7	0.07	0.042	0.03	0.09	0.09

Elapsed time (days) = 40.931
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 0.6620 (recovery = 0.0000 mgs)
Aliquot (4)= (1.1480E+08 cc) 1.48×10^7 cc.
Product (1X2X3X4) = 7.599760E+07

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
1.1556E-09	1.0000	1.1556E-09	1.4793E-09	128.02 %	

uCi /cc

5.2053E-16 6.6636E-16

DPM OF ALIQUOT 1.327E-01

Saved answer = 1.327E-01 128.02% (DPM of aliquot) *P*

$$(1.65 \times 6.66 + 5.21) \times 10^{-16} = (16.1 \times 10^{-16})$$

$$= (1.6 \times 10^{-15})$$

$$\sim (2 \times 10^{-15})$$

23-SEP-91
10: 46: 47

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 37

6-2

55
C7-B

Reviewed Date 9-24

0

Counter LBG 13
Length of count 60.5 Min.
Gross counts = 47.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
263.236	47.	60.5	0.78	0.503	0.27	0.29	0.29

Elapsed time (days) = 42.944
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1480E+08 cc

Product (1X2X3X4) = 1.148000E+08

C-zero	P-factor	dpm/cc	1 sigma
2.5263E-09	3.7520	9.4786E-09	dpm error percent sigma
		4.4437E-09	46.88 %

uCi /cc

4.2696E-15 2.0017E-15

DPM OF ALIQUOT 1.088E+00

Saved answer = 1.088E+00 46.88% *P* (DPM of aliquot)

$$(1.65 \times 2.00 + 4.27) \times 10^{-15} = < 7.6 \times 10^{-15}$$
$$\sim 8 \times 10^{-14}$$
$$\sim 8 \times 10^{-14}$$
$$\sim 1 \times 10^{-10}$$

24-SEP-91
11: 52: 11

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 38

6-3

55

A2-A

Reviewed ✓ Date 10/4

0

Counter GAW 24
Length of count 57.7 Min.
Gross counts = 8.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
261.223	8.	57.7	0.14	0.079	0.06	0.16	0.16

Elapsed time (days) = 40.931
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 0.5760 (recovery = 0.0000 mgs)
Aliquot (4)= 1.1420E+05 cc

Product (1X2X3X4) = 6.577920E+07

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
2.4887E-09	1.0000	2.4887E-09		2.0807E-09	83.61 %

uCi /cc

1.1210E-15 9.3725E-16

DPM OF ALIQUOT 2.842E-01

Saved answer = 2.842E-01 83.61% (DPM of aliquot)

$$\begin{aligned} & \cancel{(1.65 \times 9.3725 + 1.1210) E - 15 = 2.7 \times 10^{-15}} \\ & (1.65 \times 9.3725 + 1.1210) E - 16 = 2.7 \times 10^{-15} \\ & \sim 3 \times 10^{-15} \end{aligned}$$

23-SEP-91
10: 47: 03

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 38

6-3

55
A2-A

Reviewed Date 9-24

Counter LBG 14
Length of count 60.5 Min.
Gross counts = 53.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
263.236	53.	60.5	0.88	0.596	0.28	0.30	0.30

Elapsed time (days) = 42.944
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1420E+08 cc 1.142×10^7

Product (1X2X3X4) = 1.142000E+08

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
2.6581E-09	3.7520	9.9732E-09		4.9854E-09	49.99 %

uCi /cc

4.4924E-15 2.2457E-15

DPM OF ALIQUOT 1.139E+00

Saved answer = 1.139E+00 49.99% (DPM of aliquot)

$$(1.65 \times 2.246 + 4.492) E -15 = 8.2 E -15 \\ = 8.2 E -14 \\ \sim 1 \times 10^{-14}$$

23-SEP-91
10:53:12

TMA Corporation
Gross Alpha Data
AUTOD V 1.03

8701- 39

6-4

55
FB-4

Reviewed Date 9-24

0

Counter GAW 17
Length of count 92.8 Min.
Gross counts = 7.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
262.065	7.	92.8	0.08	0.040	0.04	0.11	0.11

Elapsed time (days) = 41.773
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 0.6620 (recovery = 0.0000 mgs)
Aliquot (4)= 1.000 smpl

Product (1X2X3X4) = 6.620000E-01

C-zero	P-factor	dpm/smpl	1 sigma	dpm error	percent sigma
1.7175E-01	1.0000	1.7175E-01		1.4015E-01	81.60 %

*** UNITS CONVERSION FAILED - INCOMPATIBLE UNITS ***
Check units of aliquot and final answer

DPM OF ALIQUOT 1.717E-01

P

Saved answer = 1.717E-01 81.60% (DPM of aliquot)

$$(1.65 \times 1.40 + 1.72) E-01 = < 4E-01 \frac{\text{dpm}}{\text{sample}} \times \frac{1 \text{cc}}{2.22 \text{dpm}} \times 10^6 \frac{\mu\text{Ci}}{\text{cc}}$$
$$= < 1.8 E-07 \frac{\mu\text{Ci}}{\text{sample}}$$
$$\sim < 2 \times 10^{-7} "$$

23-SEP-91
10: 47: 25

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 39

55
6-4 FB-4

Reviewed T Date 9-24

0

Counter LBG 9
Length of count 59.2 Min.
Gross counts = 30.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
264.924	30.	59.2	0.51	0.504	0.00	0.00	0.00

Elapsed time (days) = 44.632
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 1.000 smpl

Product (1X2X3X4) = 1.000000E+00

C-zero	P-factor	dpm/smpl	1 sigma	dpm error	percent sigma
2.3011E-03	3.7520	8.6337E-03		3.9505E-01	4575.63 %

*** UNITS CONVERSION FAILED - INCOMPATIBLE UNITS ***
Check units of aliquot and final answer

DPM OF ALIQUOT 8.634E-03

Saved answer = 8.634E-03 4575.63% (DPM of aliquot)

$$(1.65 \times 3.95 + 0.09)E-01 = < 6.6E-01 \frac{\text{dpm}}{\text{Sample}} \times \frac{\text{Per}}{2.22 \text{dpm}} \times 10^{-6} \frac{\text{Mg}}{\text{Lg}}$$
$$< 2.97E-07 \frac{\text{Mc}}{\text{Sample}}$$
$$< 3 \times 10^{-7}$$

24-SEP-91
08: 11: 43

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 43

7-1

55
D3-A

Reviewed Date 9-24

0

Counter GAW 21
Length of count 92.8 Min.
Gross counts = 6.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
262.065	6.	92.8	0.06	0.084	-0.02	-0.06	-0.06

Elapsed time (days) = 41.773
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.7400 (recovery = 0.0000 mgs)
Aliquot (4) = 1.0930E+08 cc

Product (1X2X3X4) = 8.088200E+07

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
-8.0075E-10	1.0000	-8.0075E-10	-1.1696E-09	146.06 %	

μ Ci /cc

-3.6070E-16 -5.2683E-16

DPM OF ALIQUOT -8.752E-02

Saved answer = -8.752E-02 -146.06% (DPM of aliquot)

$$\begin{aligned} (1.65 \times 5.27)E-16 &= < 8.7E-16 \\ &= <.87E-15 \\ &\sim < 1E-15 \end{aligned}$$

23-SEP-91
10:47:51

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 43

7-1

55
D3-A

Reviewed Date 9-24

0

Counter LBG 10
Length of count 59.2 Min.
Gross counts = 61.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
264.924	61.	59.2	1.03	0.589	0.44	0.45	0.45

Elapsed time (days) = 44.632
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 1.0000 (recovery = 0.0000 mgs)
Aliquot (4)= 1.0930E+08 cc

Product (1X2X3X4) = 1.093000E+08

C-zero	P-factor	dpm/cc	1 sigma
4.1531E-09	3.7520	1.5582E-08	dpm error percent sigma
			5.2892E-09 33.94 %

uCi /cc

7.0191E-15 2.3825E-15

DPM OF ALIQUOT 1.703E+00

Saved answer = 1.703E+00 33.94% (DPM of aliquot)

(7.02 ± 4.8)E-15

BECAUSE OF SMALL COUNT RATE
LESS THAN VALUE IS REPORTED

$$(1.65 \times 2.3825 + 7.0191)E-15 \\ = 1.1 \times 10^{-14}$$

24-SEP-91
11: 52: 38

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 45

7-3 55
D9-A

Reviewed ✓ Date 10/4

O

Counter GAW 24
Length of count 92.8 Min.
Gross counts = 5.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
262.065	5.	92.8	0.05	0.097	-0.04	-0.12	-0.12

Elapsed time (days) = 41.773
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 0.5760 (recovery = 0.0000 mgs)
Aliquot (4)= 1.1980E+08 cc

Product (1X2X3X4) = 6.900480E+07

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
-1.7116E-09	1.0000	-1.7116E-09	-1.0622E-09	62.06 %	

uCi /cc

-7.7098E-16 -4.7846E-16

DPM OF ALIQUOT -2.050E-01

Saved answer = -2.050E-01 -62.06% (DPM of aliquot)

$$(1.65 \times 4.7846) E-16 = <7.9 \times 10^{-16}$$
$$= <7.9 \times 10^{-15}$$
$$\sim <1 \times 10^{-15}$$

23-SEP-91
10:48:21

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 45

55

7-3

D9-A

Reviewed J Date 9-24

Counter LBG 1
Length of count 102.2 Min.
Gross counts = 102.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
264.946	102.	102.2	1.00	0.537	0.46	0.44	0.44

Elapsed time (days) = 44.654
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1980E+08 cc 1.198×10^7

Product (1X2X3X4) = 1.198000E+08

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
3.6352E-09	3.7520	1.3639E-08		3.4887E-09	25.58 %

$\mu\text{Ci}/\text{cc}$

6.1439E-15 1.5715E-15

DPM OF ALIQUOT 1.634E+00

Saved answer = 1.634E+00 25.58% (DPM of aliquot)

(6.1 ± 3.1) E -15

BECAUSE OF SMALL COUNT RATE
LESS THAN VALUE IS REPORTED

$$(1.65 \times 1.5715 + 6.1439) E -15 \\ = 2.9 \times 10^{-14}$$

$$\sim 1 \times 10^{-14}$$

23-SEP-91
10:48:43

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 46

7-4

55
D1-A

Reviewed Date 9-24

0

Counter LBG 2
Length of count 102.2 Min.
Gross counts = 117.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
264.946	117.	102.2	1.15	0.582	0.56	0.57	0.57

Elapsed time (days) = 44.654
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda \times t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1500E+08 cc

Product (1X2X3X4) = 1.150000E+08

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
4.9949E-09	3.7520	1.8741E-08		4.2207E-09	22.52 %

$\mu\text{Ci}/\text{cc}$

8.4418E-15 1.9012E-15

DPM OF ALIQUOT 2.155E+00

Saved answer = 2.155E+00 22.52% (DPM of aliquot)

$(8.4 \pm 3.8) \times 10^{-15}$

BECAUSE OF SMALL COUNT RATE
LESS THAN VALUE IS REPORTED

$$(1.65 \times 1.9012 + 8.4418) \times 10^{-15}$$
$$= 1.2 \times 10^{-14}$$

23-SEP-91
10: 53: 30

TMA Corporation
Gross Alpha Data
AUTOD V 1.03

8701- 46

55
7-4
D1-A

Reviewed Date 9-24

O

Counter GAW 17
Length of count 60.5 Min.
Gross counts = 1.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
262.130	1.	60.5	0.02	0.040	-0.02	-0.08	-0.08

Elapsed time (days) = 41.838
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.6620 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1500E+08 cc

Product (1X2X3X4) = 7.613000E+07

C-zero -9.8946E-10	P-factor 1.0000	dpm/cc -9.8946E-10	1 sigma dpm error -7.2539E-10	percent sigma 73.31 %
--------------------	-----------------	--------------------	-------------------------------	-----------------------

$\mu Ci /cc$

-4.4570E-16 -3.2675E-16

DPM OF ALIQUOT -1.138E-01

Saved answer = -1.138E-01 -73.31% (DPM of aliquot)

$$\begin{aligned} (1.65 \times 3.27) E-16 &= 5.4 E-16 \\ &= 5.4 E-15 \\ &\sim 1 \times 10^{-15} \end{aligned}$$

23-SEP-91
10:49:01

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 47

55
7-5 FB-5

Reviewed J Date 9-24

0

Counter LBG 3
Length of count 88.1 Min.
Gross counts = 37.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
265.704	37.	88.1	0.42	0.453	-0.03	-0.04	-0.04

Elapsed time (days) = 45.412
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 1.0000 (recovery = 0.0000 mgs)
Aliquot (4)= 1.000 smpl

Product (1X2X3X4) = 1.000000E+00

C-zero	P-factor	dpm/smpl	1 sigma	dpm error	percent sigma
-3.5650E-02	3.7520	-1.3376E-01		-3.5540E-01	265.70 %

*** UNITS CONVERSION FAILED - INCOMPATIBLE UNITS ***
Check units of aliquot and final answer

DPM OF ALIQUOT -1.338E-01

f

Saved answer = -1.338E-01 -265.70% (DPM of aliquot)

$$\begin{aligned} (1.15 \times 3.55) E-01 &= < 5.9 E-01 \frac{\text{dpm}}{\text{sample}} \times \frac{\text{PCi}}{2.22 \text{dpm}} \times 10^{-6} \frac{\text{mCi}}{\text{PCi}} \\ &= < 2.6 \times 10^{-7} \frac{\text{mCi}}{\text{sample}} \\ &= < 3 \times 10^{-7} \end{aligned}$$

24-SEP-91
08: 11: 56

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 47

55

7-5

FB-5

Reviewed Date 9-24

O

Counter GAW 21
Length of count 60.5 Min.
Gross counts = 5.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
262.130	5.	60.5	0.08	0.084	0.00	0.00	0.00

Elapsed time (days) = 41.838
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.7400 (recovery = 0.0000 mgs)
Aliquot (4) = 1.000 smpl

Product (1X2X3X4) = 7.400000E-01

C-zero	P-factor	dpm/smpl	dpm error	percent sigma
-6.1939E-03	1.0000	-6.1939E-03	-1.7330E-01	2797.88 %

*** UNITS CONVERSION FAILED - INCOMPATIBLE UNITS ***
Check units of aliquot and final answer

DPM OF ALIQUOT -6.194E-03

Saved answer = -6.194E-03 -2797.88% (DPM of aliquot)

$$\begin{aligned} (-6.194 \times 1.000) \times 10^{-3} &= -6.194 \times 10^{-3} \text{ dpm} \\ &\times \frac{\text{dpm}}{\text{sample}} \times \frac{\text{per}}{2.22 \text{ dpm}} \times \frac{10^6 \text{ mc}}{\text{pc}} \\ &= -2.797 \times 10^{-7} \text{ mc} \\ &= -2.797 \times 10^{-7} \text{ "} \end{aligned}$$

23-SEP-91
10:49:17

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 50

8-1

55
E2-A

Reviewed Date 9-24

0

Counter LBG 4
Length of count 88.1 Min.
Gross counts = 89.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
265.704	89.	88.1	1.01	0.800	0.21	0.21	0.21

Elapsed time (days) = 45.412
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 1.0000 (recovery = 0.0000 mgs)
Aliquot (4)= 1.1370E+08 cc 11.37 x 10⁻⁷

Product (1X2X3X4) = 1.137000E+08

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
1.8645E-09	3.7520	6.9955E-09		4.7882E-09	68.45 %

uCi /cc

3.1511E-15 2.1568E-15

DPM OF ALIQUOT 7.954E-01

Saved answer = 7.954E-01 68.45% (DPM of aliquot)

$$\begin{aligned} (1.65 \times 2.157 + 3.151) E - 15 &= 2.67 E - 15 \\ &= 2.7 E - 14 \\ &\sim 2 \times 10^{-14} \end{aligned}$$

24-SEP-91
11:52:59

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 50

55

8-1

E2-A

Reviewed Off Date 10/14

0

Counter GAW 24
Length of count 60.5 Min.
Gross counts = 3.

NO SAMPLE WEIGHT

✓

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
262.130	3.	60.5	0.05	0.097	-0.05	-0.13	-0.13

Elapsed time (days) = 41.838
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.5760 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1370E+08 cc

Product (1X2X3X4) = 6.549120E+07

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
-1.9833E-09	1.0000	-1.9833E-09	-1.2923E-09	65.16 %	

uCi /cc

-8.9337E-16 -5.8213E-16

DPM OF ALIQUOT -2.255E-01

Saved answer = -2.255E-01 -65.16% (DPM of aliquot)

$$(1.65 \times 5.8213) E-16 = -8.96 \times 10^{-15}$$

$\sim -1 \times 10^{-15}$

J

F

23-SEP-91
10:49:38

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 51

B-2

55
A4-A

Reviewed J Date 9-64

Counter LBG 9
Length of count 87.1 Min.
Gross counts = 74.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
265.705	74.	87.1	0.85	0.504	0.35	0.33	0.33

Elapsed time (days) = 45.413
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda \times t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1000E+08 cc
Product (1X2X3X4) = 1.100000E+08

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
2.9958E-09	3.7520	1.1240E-08		3.7652E-09	33.50 %

uCi /cc

5.0632E-15 1.6960E-15

DPM OF ALIQUOT 1.236E+00

Saved answer = 1.236E+00 33.50% (DPM of aliquot)

(5.1±3.4)E -15

BECAUSE OF SMALL COUNT RATE
LESS THAN VALUE IS REPORTED
 $(1.65 \times 1.696 + 5.0632)E-15$
 $= 2.79 \times 10^{-14}$
 $\sim 1 \times 10^{-14}$

23-SEP-91
10: 54: 36

TMA Corporation
Gross Alpha Data
AUTOD V 1.03

8701- 51 55
8-2 A4-A

Reviewed Date 9-24

0

Counter GAW 17
Length of count 73.0 Min.
Gross counts = 7.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
262.174	7.	73.0	0.10	0.040	0.06	0.18	0.18

Elapsed time (days) = 41.882
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 0.6620 (recovery = 0.0000 mgs)
Aliquot (4)= 1.1000E+08 cc 1.00E+07cc
Product (1X2X3X4) = 7.282000E+07

C-zero	P-factor	dpm/cc	dpm error	percent sigma
2.4612E-09	1.0000	2.4612E-09	1.6104E-09	65.43 %

uCi /cc

1.1087E-15 7.2543E-16

DPM OF ALIQUOT 2.707E-01

Saved answer = 2.707E-01 65.43% (DPM of aliquot)

$$(1.65 \times 7.25 + \cancel{1.09}) E - 16 = < 23.1 \cancel{E} - 16 \\ = < 2.3 E - 15$$

< 2 x 10⁻¹⁵

23-SEP-91
10:49:54

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 52

8-3

55
A4-B

Reviewed Date 9-24

0

Counter LBG 10
Length of count 87.1 Min.
Gross counts = 80.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
265.705	80.	87.1	0.92	0.589	0.33	0.34	0.34

Elapsed time (days) = 45.413

Lambda = 0.000E-01 Reciprocal days

exp(-lambda X t) (1)= 1.000E+00

Chemical yield (2)= 1.0000

PPT. correction (3)= 1.0000 (recovery = 0.0000 mgs)

Aliquot (4)= 1.2280E+08 cc

Product (1X2X3X4) = 1.228000E+08

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
2.7654E-09	3.7520	1.0376E-08		3.9238E-09	37.82 %

uCi /cc

4.6737E-15 1.7675E-15

DPM OF ALIQUOT 1.274E+00

Saved answer = 1.274E+00 37.82% (DPM of aliquot)

(4.7±3.5)E-15

BECAUSE OF SMALL COUNT RATE
LESS THAN VALUE IS REPORTED

(1.65×1.7675 + 4.6737)E-15 = 1.76×10⁻¹⁴

~1×10⁻¹⁴

24-SEP-91
08: 12: 13

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 52

55
B-3 A4-B

0

Reviewed Date 9-24

Counter GAW 21
Length of count 73.0 Min.
Gross counts = 3.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
222.174	3.	73.0	0.04	0.084	-0.04	-0.14	-0.14

Elapsed time (days) = 41.882
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 0.7400 (recovery = 0.0000 mgs)
Aliquot (4)= 1.2280E+08 cc 12.28 E+07
Product (1X2X3X4) = 9.087200E+07

C-zero -1.5813E-09	P-factor 1.0000	dpm/cc -1.5813E-09	1 sigma dpm error -9.4945E-10	percent sigma 60.04 %
uCi /cc				
-7.1232E-16 -4.2768E-16				

DPM OF ALIQUOT -1.942E-01

Saved answer = -1.942E-01 -60.04% (DPM *P* aliquot)

$$\begin{aligned}(1.65 \times 4.28) E -16 &= <7.1 E -16 \\ &= <7.1 E -15 \\ &\sim <1 E -15\end{aligned}$$

23-SEP-91
10:50:15

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 53

8-4

55
B3-A

Reviewed Date 9-24

O

Counter
Length of count LBG 11
Gross counts = 85.9 Min.
 53.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKCD	NET CPM	ADJUSTED CPM	CORRECTED CPM
265.705	53.	85.9	0.62	0.507	0.11	0.11	0.11

Elapsed time (days) = 45.413
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1000E+08 cc 11.00X10⁻⁷

Product (1X2X3X4) = 1.100000E+08

C-zero	P-factor	dpm/cc	1 sigma
9.9666E-10	3.7520	3.7395E-09	dpm error percent sigma
			3.5509E-09 94.96 %

uCi /cc

1.6845E-15 1.5995E-15

DPM OF ALIQUOT 4.113E-01

Saved answer = 4.113E-01 94.96% (DPM of aliquot)

$$(1.65 \times 1.60 + 1.68^5) \times 10^{-15} = 4.3 \times 10^{-15}$$
$$= 4.3 \times 10^{-14}$$
$$\sim 1 \times 10^{-14}$$

24-SEP-91
11: 53: 18

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 53

55

8-4

B3-A

Reviewed 90 Date 10/14

O

Counter GAW 24
Length of count 73.0 Min.
Gross counts = 7.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
262.174	7.	73.0	0.10	0.097	0.00	0.00	0.00

Elapsed time (days) = 41.882
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.5760 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1000E+08 cc

Product (1X2X3X4) = 6.336000E+07

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
-4.9670E-11	1.0000	-4.9670E-11	-	-1.6450E-09	3311.82 %

$\mu\text{Ci}/\text{cc}$

-2.2374E-17 -7.4098E-16

DPM OF ALIQUOT -5.464E-03

Saved answer = -5.464E-03 -3311.82% (DPM of aliquot)

$$(1.65 \times -7.409) \times 10^{-16} = -1.2 \times 10^{-15}$$

23-SEP-91
10:50:33

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 54

8-5 55
C1-A

0

Reviewed Date 9-24

Counter LBG 12
Length of count 85.9 Min.
Gross counts = 106.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
265.705	106.	85.9	1.23	0.588	0.65	0.64	0.64

Elapsed time (days) = 45.413
Lambda = 0.000E-01 Reciprocal days
exp(-lambda x t) (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1220E+08 cc

Product (1X2X3X4) = 1.122000E+08

C-zero 5.6744E-09	P-factor 3.7520	dpm/cc 2.1290E-08	1 sigma dpm error 4.5851E-09	percent sigma 21.54 %
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uCi /cc

9.5902E-15 2.0654E-15

DPM OF ALIQUOT 2.389E+00

Saved answer = 2.389E+00 21.54% (DPM of aliquot)

(9.6 ± 4.1)E-15

BECAUSE OF SMALL COUNT RATE
LESS THAN VALUE IS REPORTED

$$(1.65 \times 2.0654 + 9.5902)E-15 \\ = 1.3 \times 10^{-14}$$

23-SEP-91
10: 54: 57

TMA Corporation
Gross Alpha Data
AUTOD V 1.03

8701- 54

8-5

55

C1-A

Reviewed Date 9-24

Counter
Length of count GAW 17
Gross counts = 58.9 Min.
3.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	DKOD	NET CPM	ADJUSTED CPM	CORRECTED CPM
262.226	3.	58.9	0.05	0.040	0.01	0.04	0.04

Elapsed time (days) = 41.934
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.6620 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1220E+08 cc 1.122 E+07
Product (1X2X3X4) = 7.427640E+07

C-zero	P-factor	dpm/cc	1 sigma
4.7313E-10	1.0000	4.7313E-10	dpm error percent sigma
			1.2877E-09 272.17 %

uCi /cc

2.1312E-16 5.8005E-16

DPM OF ALIQUOT 5.308E-02

Saved answer = 5.308E-02 272.17% (DPM of aliquot)

$$\begin{aligned} (1.65 \times 5.8 + 2.13) E - 16 &= < 11.7 E - 16 \\ &= < 1.2 E - 15 \\ &\sim < 1 \times 10^{-15} \end{aligned}$$

23-SEP-91
10:51:00

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 55

8-6 55
FB-6

0

Reviewed Date 9-24

Counter
Length of count LBG 13
Gross counts = 84.6 Min.
40

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
265.706	40.	84.6	0.47	0.503	-0.03	-0.03	-0.03

Elapsed time (days) = 45.414
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 1.000 smpl

Product (1X2X3X4) = 1.000000E+00

C-zero	P-factor	dpm/smpl	1 sigma
-3.1907E-02	3.7520	-1.1972E-01	dpm error percent sigma
		-3.8106E-01	318.30 %

*** UNITS CONVERSION FAILED - INCOMPATIBLE UNITS ***
Check units of aliquot and final answer

DPM OF ALIQUOT -1.197E-01

R

Saved answer = -1.197E-01 -318.30% (DPM of aliquot)

$$(1.65 \times 3.81) \times 10^{-6} \frac{\text{dpm}}{\text{sample}} \times \frac{\text{PCi}}{2.22 \text{ dpm}} \times 10^{-6} \frac{\mu\text{Ci}}{\text{PCi}}$$

~~5.5~~ $\times 10^{-7}$ $\frac{\mu\text{Ci}}{\text{sample}}$

$< 3 \times 10^{-7}$,

24-SEP-91
08: 12: 28

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 55

55

B-6

FB-6

Reviewed Date 9-24

0

Counter GAW 21
Length of count 58.9 Min.
Gross counts = 2.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
262.226	2.	58.9	0.03	0.084	-0.05	-0.17	-0.17

Elapsed time (days) = 41.934
Lambda = 0.000E-01 Reciprocal days
exp(-lambda x t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 0.7400 (recovery = 0.0000 mgs)
Aliquot (4)= 1.000 smpl

Product (1X2X3X4) = 7.400000E-01

C-zero -2.2636E-01	P-factor 1.0000	dpm/smpl -2.2636E-01	1 sigma dpm error -1.1785E-01	percent sigma 52.06 %
--------------------	-----------------	----------------------	-------------------------------	-----------------------

*** UNITS CONVERSION FAILED - INCOMPATIBLE UNITS ***
Check units of aliquot and final answer

DPM OF ALIQUOT -2.264E-01

P

Saved answer = -2.264E-01 -52.06% (DPM of aliquot)

$$\begin{aligned} (-6.65 \times 1.179) \times 10^{-1} &= < 1.95 \times 10^{-1} \frac{\text{dpm}}{\text{sample}} \times \frac{\text{PCi}}{2.22 \text{dpm}} \times 10^{-6} \frac{\text{MCi}}{\text{PCi}} \\ &= < 0.88 \times 10^{-7} \frac{\text{MCi}}{\text{sample}} \\ &\sim < 1 \times 10^{-7} \end{aligned}$$

23-SEP-91
10: 51: 20

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 57

9-1 55
A3-A

Reviewed I Date 9-24

Counter 0
Length of count LBG 14
Gross counts = 84.6 Min.
67.

NO. SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
265.706	67.	84.6	0.79	0.596	0.20	0.21	0.21

Elapsed time (days) = 45.414
Lambda = 0.000E-01 Reciprocal days
exp(-lambda x t) (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 1.2010E+08 cc 12.01X10⁻⁷

Product (1X2X3X4) = 1.201000E+08

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
1.7720E-09	3.7520	6.6485E-09		4.0821E-09	61.40 %

μ Ci /cc

2.9940E-15 1.8388E-15

DPM OF ALIQUOT 7.985E-01

Saved answer = 7.985E-01 61.40% (DPM of aliquot)

$$\begin{aligned} (1.65 \times 1.839 + 2.995) E-15 &= < 6.0 E-15 \\ &= < 6 E-14 \\ &\sim < 1 \times 10^{-14} \end{aligned}$$

24-SEP-91
11:53:43

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 57

55

9-1

A3-A

Reviewed MM Date 10/4

0

Counter
Length of count GAW 24
Gross counts = 58.9 Min.
7.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0



Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
262.226	7.	58.9	0.12	0.097	0.02	0.06	0.06

Elapsed time (days) = 41.934
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 0.5760 (recovery = 0.0000 mgs)
Aliquot (4)= 1.2010E+08 cc

Product (1X2X3X4) = 6.917760E+07

C-zero 8.6654E-10	P-factor 1.0000	dpm/cc 8.6654E-10	1 sigma dpm error 1.8379E-09	percent sigma 212.09 %
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uCi /cc

3.9033E-16 8.2786E-16

DPM OF ALIQUOT 1.041E-01

Saved answer = 1.041E-01 212.09% (DPM of aliquot)

P

$$(1.65 \times 8.2786 + 3.9033) \times 10^{-16} = < 1.8 \times 10^{-15}$$

$\sim < 2 \times 10^{-15}$

23-SEP-91
10: 51: 39

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 58

9-2

55
A5-B

0

Reviewed ✓ Date 9-24

Counter
Length of count LBG 15
Gross counts = 83.3 Min.
 41.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
265.707	41.	83.3	0.49	0.634	-0.14	-0.15	-0.15

Elapsed time (days) = 45.415
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 1.0000 (recovery = 0.0000 mgs)
Aliquot (4)= 9.0350E+07 cc

Product (1X2X3X4) = 9.835000E+07

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
-1.4985E-09	3.7520	-5.6223E-09	-4.2820E-09	76.16 %	

uCi /cc

-2.5326E-15 -1.9288E-15

DPM OF ALIQUOT -5.530E-01

Saved answer = -5.530E-01 -76.16% (DPM of aliquot)

(1.65X1.9288)E-15 = < 3.2 E-15

~ < 3 x 10⁻¹⁵

24-SEP-91
08: 12: 41

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 58

55
9-2
A5-B

O

Reviewed Date 9-24

Counter
Length of count
Gross counts =

GAW 21
61.1 Min.
7.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
263.076	7.	61.1	0.11	0.052	0.06	0.21	0.21

Elapsed time (days) = 42.784
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 0.7400 (recovery = 0.0000 mgs)
Aliquot (4)= 9.8350E+07 cc

Product (1X2X3X4) = 7.277900E+07

C-zero	P-factor	dpm/cc	1 sigma
2.8851E-09	1.0000	2.8851E-09	dpm error percent sigma
			2.0174E-09 69.92 %
		uCi /cc	

DPM OF ALIQUOT 2.837E-01

1.2996E-15 9.0873E-16

Saved answer = 2.837E-01 69.92% (DPM of aliquot)

$$\begin{aligned} (1.65 \times 9.1 + 13.0) \times 10^{-16} &= 2.8 \times 10^{-16} \\ &= 2.8 \times 10^{-15} \\ &\approx 3 \times 10^{-15} \end{aligned}$$

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24-SEP-91
08:12:54

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 59

9-3

55
B2-A

Reviewed Date 9-24

Counter
Length of count GAW 21
Gross counts = 56.9 Min.
2.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
263.119	2.	56.9	0.04	0.052	-0.02	-0.06	-0.06

Elapsed time (days) = 42.827
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.7400 (recovery = 0.0000 mgs)
Aliquot (4) = 1.2060E+08 cc 12.06 $\times 10^7$

Product (1X2X3X4) = 8.924400E+07

C-zero P-factor -6.3390E-10 1.0000
dpm/cc -6.3390E-10 1 sigma
dpm error -9.6349E-10 percent sigma
uCi /cc -2.8554E-16 -4.3400E-16 151.99 %

DPM OF ALIQUOT -7.645E-02

Saved answer = -7.645E-02 -151.99% (DPM of aliquot)

$$(1.65 \times 4.34) E-16 = < 7.2 E-16 \\ = < 7 E-15 \\ \sim < 1 \times 10^{-15}$$

24-SEP-91
08: 13: 07

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 60

9-4 55
C2-A

0

Reviewed Date 9-24

Counter
Length of count GAW 21
Gross counts = 57.4 Min.
5.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
263.160	5.	57.4	0.09	0.052	0.04	0.12	0.12

Elapsed time (days) = 42.868
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 0.7400 (recovery = 0.0000 mgs)
Aliquot (4)= 1.1140E+08 cc 1.14 × 10⁻⁷

Product (1X2X3X4) = 8.243600E+07

C-zero 1.4305E-09	P-factor 1.0000	dpm/cc 1.4305E-09	1 sigma dpm error 1.6067E-09	percent sigma 112.32 %
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uCi /cc

6.4437E-16 7.2373E-16

DPM OF ALIQUOT 1.594E-01

Saved answer = 1.594E-01 112.32% (DPM of aliquot)

$$(1.65 \times 7.24 + 6.44) \times 10^{-16} = < 18.39 \times 10^{-16}$$
$$= < 1.8 \times 10^{-15}$$
$$\sim < 2 \times 10^{-15}$$

23-SEP-91
10:52:09

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 59

9-3

55
B2-A

Reviewed Date 9-24

Counter LRG 16
Length of count 83.3 Min.
Gross counts = 56.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKOD	NET CPM	ADJUSTED CPM	CORRECTED CPM
265.707	56.	83.3	0.67	0.494	0.18	0.18	0.18

Elapsed time (days) = 45.415
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 1.2060E+08 cc

Product (1X2X3X4) = 1.206000E+08

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
1.4880E-09	3.7520	5.5829E-09		3.3745E-09	60.44 %

σ_{C_i} /cc

2.5148E-15 1.5200E-15

DPM OF ALIQUOT 6.733E-01

Saved answer = 6.733E-01 60.44% (DPM of aliquot)

$$\begin{aligned} (1.65 \times 1.52 + 2.51) E-15 &= < 5 E-15 \\ &= < 0.5 \times 10^{-14} \\ &\sim < 1 \times 10^{-14} \end{aligned}$$

24-SEP-91
08: 13: 20

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 61

9-5 55
D5-A

Reviewed Date 9-24

Counter 0
Length of count GAW 21
Gross counts = 51.3 Min.
2.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
263.201	2.	51.3	0.04	0.052	-0.01	-0.04	-0.04

Elapsed time (days) = 42.909
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.7400 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1000E+08 cc || $\times 10^7$ cc.
Product (1X2X3X4) = 8.140000E+07

C-zero -5.3747E-10	P-factor 1.0000	dpm/cc -5.3747E-10	1 sigma dpm error -1.1647E-09	percent sigma 216.69 %
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uCi /cc

-2.4210E-16 -5.2463E-16

DPM OF ALIQUOT -5.912E-02

Saved answer = -5.912E-02 -216.69% (DPM of aliquot)

$$(1.65 \times 5.246) \times 10^{-16} = 8.7 \times 10^{-16}$$
$$= 8.7 \times 10^{-15}$$

$$\sim 1 \times 10^{-15}$$
$$< 1 \times 10^{-15}$$

23-SEP-91
15:30:47

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 60

9-4 55
C2-A

Reviewed Date 9-24

0

Counter
Length of count
Gross counts =

LBG 11
50.3 Min.
49.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
266.897	49.	50.3	0.97	0.509	0.46	0.46	0.46

Elapsed time (days) = 46.605
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1140E+08 cc

Product (1X2X3X4) = 1.114000E+08

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
4.1595E-09	3.7520	1.5607E-08		5.1017E-09	32.69 %

uCi /cc

7.0300E-15 2.2980E-15

DPM OF ALIQUOT 1.739E+00

Saved answer = 1.739E+00 32.69% (DPM of aliquot)

(7.0±4.6)E-15

BECAUSE OF SMALL COUNT RATE
LESS THAN VALUE IS REPORTED
$$(1.65 \times 2.2980 + 7.0300)E-15$$
$$= < 1.1 \times 10^{-14}$$

23-SEP-91
10: 55: 15

TMA Corporation
Gross Alpha Data
AUTOR V 1.03

8701- 62

9-6 55
E3-A

0

Reviewed Date 9-24

Counter
Length of count GAW 17
Gross counts = 61.0 Min.
3.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
263.238	3.	61.0	0.05	0.043	0.01	0.02	0.02

Elapsed time (days) = 42.946
Lambda = 0.000E-01 Reciprocal days
exp(-lambda x t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 0.6620 (recovery = 0.0000 mgs)
Aliquot (4)= 1.0920E+08 cc 10.9×10^7

Product (1X2X3X4) = 7.229040E+07

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
2.7307E-10	1.0000	2.7307E-10		1.2825E-09	469.65 %

$\mu\text{Ci} / \text{cc}$

1.2300E-16 5.7768E-16

DPM OF ALIQUOT 2.982E-02

Saved answer = 2.982E-02 469.65% (DPM of aliquot)

$$\begin{aligned}(1.65 \times 5.78 + 1.23) \times 10^{-16} &= < 10.77 \times 10^{-16} \\ &= < 1.07 \times 10^{-15} \\ &= < 1 \times 10^{-15}\end{aligned}$$

23-SEP-91
15:31:00

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 61

9-5

55

D5-A

0

Reviewed Date 9-14

Counter LBG 12
Length of count 50.3 Min.
Gross counts = 34.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
266.897	34.	50.3	0.68	0.591	0.08	0.08	0.08

Elapsed time (days) = 46.605
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1000E+08 cc

Product (1X2X3X4) = 1.100000E+08

C-zero 7.5977E-10	P-factor 3.7520	dpm/cc 2.8507E-09	1 sigma dpm error 4.5737E-09	percent sigma 160.44 %
uCi /cc				

1.2841E-15 2.0602E-15

DPM OF ALIQUOT 3.136E-01

Saved answer = 3.136E-01 160.44% (DPM of aliquot) *P*

$$(1.65 \times 2.06 + 1.28) \times 10^{-15} = < 4.7 \times 10^{-15}$$
$$= < 4.7 \times 10^{-14}$$
$$\sim < 1 \times 10^{-14}$$

24-SEP-91
08: 13: 34

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 64
10-1 55
A6-A

Reviewed Date 9-24

0

Counter
Length of count GAW 21
Gross counts = 61.0 Min.
6.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
263.238	6.	61.0	0.10	0.052	0.05	0.16	0.16

Elapsed time (days) = 42.946
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.7400 (recovery = 0.0000 mgs)
Aliquot (4) = 1.0910E+08 cc 10.9×10^7

Product (1X2X3X4) = 8.073400E+07

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
1.9238E-09	1.0000	1.9238E-09		1.6879E-09	87.74 %

μ Ci /cc

8.6658E-16 7.6031E-16

DPM OF ALIQUOT 2.099E-01

Saved answer = 2.099E-01 87.74% (DPM of aliquot) *P*

$$(1.65 \times 7.60 + 8.666) \times 10^{-16} = < 21.2 \times 10^{-16}$$
$$= < 2.1 \times 10^{-15}$$
$$\sim < 2 \times 10^{-15}$$

23-SEP-91
15:31:13

TMA Corporation
Beta Counting Data
AUTOB V 1.03

B701- 62

55
9-6 E3-A

O

Reviewed Date 9-4

Counter LBG 13
Length of count 50.3 Min.
Gross counts = 36.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
266.897	36.	50.3	0.72	0.504	0.21	0.22	0.22

Elapsed time (days) = 46.605
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 1.0920E+08 cc

Product (1X2X3X4) = 1.092000E+08

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
2.0445E-09	3.7520	7.6710E-09		4.8510E-09	63.24 %

uCi /cc

3.4554E-15 2.1851E-15

DPM OF ALIQUOT 8.377E-01

Saved answer = 8.377E-01 63.24% (DPM of aliquot)

$$\begin{aligned} (1.65 \times 2.185 + 3.456) \times 10^{-15} &= 7.1 \times 10^{-15} \\ &= 7.1 \times 10^{-14} \\ &\sim 7.1 \times 10^{-14} \end{aligned}$$

24-SEP-91
11:54:12

TMA Corporation
Gross Alpha Data
AUTOD V 1.03

8701- 65

10-2 55
D4-A

0

Reviewed GTA Date 10/4

Counter
Length of count GAW 24
Gross counts = 61.0 Min.
0.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

✓

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
263.238	0.	61.0	0.00	0.087	-0.09	-0.24	-0.24

Elapsed time (days) = 42.946
Lambda = 0.000E-01 Reciprocal days
exp(-lambda x t) (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.5760 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1010E+08 cc

Product (1X2X3X4) = 6.341760E+07

C-zero -3.7603E-09	P-factor 1.0000	dpm/cc -3.7603E-09	1 sigma dpm error -4.5123E-10	100% percent sigma -12.00%
--------------------	-----------------	--------------------	-------------------------------	----------------------------

uCi /cc
-1.6938E-15
-1.6938E-15
-2.0326E-16

DPM OF ALIQUOT -4.140E-01

Saved answer = -4.140E-01 -12.00% (DPM of aliquot)

$$(1.65 \times 1.6938) \times 10^{-15} = 2.8 \times 10^{-15}$$

$$\sim 3 \times 10^{-15}$$

P

23-SEP-91
15:31:26

TMA Corporation
Beta Counting Data
AUTOB V 1.03

B701- 64

10-1

55

A6-A

Reviewed Date 9-24

O

Counter
Length of count LBG 14
Gross counts = 50.3 Min.
 40.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
266.897	40.	50.3	0.79	0.589	0.21	0.22	0.22

Elapsed time (days) = 46.605
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 1.0910E+08 cc

Product (1X2X3X4) = 1.091000E+08

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
2.0497E-09	3.7520	7.6904E-09		5.3855E-09	70.03 %

uCi /cc

3.4642E-15 2.4259E-15

DPM OF ALIQUOT 8.390E-01

Saved answer = 8.390E-01 70.03% (DPM of aliquot)

$$(1.65 \times 2.426 + 3.464) \times 10^{-15} = < 7.5 \times 10^{-15}$$
$$= < 7.5 \times 10^{-14}$$
$$\sim < 10^{-14}$$

24-SEP-91
08: 13: 49

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 66

10-3

55
D4-B

Reviewed Date 9-24

O

Counter
Length of count
Gross counts =

GAW 21
82.5 Min.
4.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
264.058	4.	82.5	0.05	0.077	-0.03	-0.10	-0.10

Elapsed time (days) = 43.766
Lambda = 0.000E-01 Reciprocal days
exp(-lambda x t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 0.7400 (recovery = 0.0000 mgs)
Aliquot (4)= 1.1810E+08 cc 1.81x10⁷
Product (1X2X3X4) = 8.739400E+07

C-zero	P-factor	dpm/cc	1 sigma
-1.0985E-09	1.0000	-1.0985E-09	dpm error percent sigma
			-9.9912E-10 90.95 %

uCi /cc

-4.9482E-16 -4.5005E-16

DPM OF ALIQUOT -1.297E-01

Saved answer = -1.297E-01 -90.95% (DPM of aliquot)

$$\begin{aligned} (1.15 \times 4.5)E-16 &= < 7.4 E-16 \\ &= < 7.4 E-15 \\ &\sim < 1 E-15 \end{aligned}$$

23-SEP-91
16: 53: 13

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 65

55

10-2

D4-A

Reviewed

Date

9-24

0

Counter LBG 1
Length of count 50.0 Min.
Gross counts = 45.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
266.943	45.	50.0	0.90	0.542	0.36	0.34	0.34

Elapsed time (days) = 46.651
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1010E+08 cc 1.01×10^7

Product (1X2X3X4) = 1.101000E+08

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
3.0712E-09	3.7520	1.1523E-08		4.8007E-09	41.66 %

uCi /cc

5.1906E-15 2.1625E-15

DPM OF ALIQUOT 1.269E+00

Saved answer = 1.269E+00 41.66% (DPM of aliquot) P

$(5.2 \pm 4.3) \times 10^{-15}$

BECAUSE OF SMALL COUNT RATE
LESS THAN VALUE IS REPORTED

$$(1.65 \times 2.1625 + 5.1906) \times 10^{-15} \\ = 1.88 \times 10^{-14}$$

$\sim 1 \times 10^{-14}$

24-SEP-91
08: 14: 07

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 67 55
10-4 E1-A

Reviewed Date 9-24

0

Counter GAW 21
Length of count 57.0 Min.
Gross counts = 5.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
264.116	5.	57.0	0.09	0.077	0.01	0.04	0.04

Elapsed time (days) = 43.824
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 0.7400 (recovery = 0.0000 mgs)
Aliquot (4)= 1.1100E+08 cc 1.10 x 10⁻⁷

Product (1X2X3X4) = 8.214000E+07

C-zero 4.4179E-10	P-factor 1.0000	dpm/cc 4.4179E-10	1 sigma dpm error 1.6527E-09	percent sigma 374.08 %
uCi /cc				
1.9900E-16				

DPM OF ALIQUOT 4.904E-02

Saved answer = 4.904E-02 374.08% (DPM of aliquot)

$$(1.65 \times 7.44) \times 10^{-16} = < 12.3 \times 10^{-16}$$

$$< 1.2 \times 10^{-15}$$

$$\sim < 1 \times 10^{-15}$$

23-SEP-91
16: 53: 41

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 66

55
10-3 D4-B

O

Reviewed Date 9-24

Counter
Length of count LBG 2
Gross counts = 50.0 Min.
43.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
266.943	43.	50.0	0.86	0.580	0.28	0.29	0.29

Elapsed time (days) = 46.651
Lambda = 0.000E-01 Reciprocal days
exp(-lambda x t) (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1810E+08 cc

Product (1X2X3X4) = 1.181000E+08

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
2.4168E-09	3.7520	9.0679E-09		4.8105E-09	53.05 %

uCi /cc

4.0846E-15 2.1669E-15

DPM OF ALIQUOT 1.071E+00

Saved answer = 1.071E+00 53.05% (DPM of aliquot)

$$(1.65 \times 2.167 + 4.08) E-15 = < 7.66 E-15$$

$$= < .77 E-14$$

$$\sim < 1 \times 10^{-14}$$

24-SEP-91
08:14:24

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 68

10-5 55
D5-B

Reviewed Date 9-24

Counter 0
Length of count GAW 21
Gross counts = 52.7 Min.
7.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
264.156	7.	52.7	0.13	0.077	0.06	0.19	0.19

Elapsed time (days) = 43.864
Lambda = 0.000E-01 Reciprocal days
exp(-lambda x t) (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.7400 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1190E+08 cc 1.19×10^7

Product (1X2X3X4) = 8.280600E+07

C-zero	P-factor	dpm/cc	1 sigma
2.2673E-09	1.0000	2.2673E-09	dpm error percent sigma
			2.0743E-09 91.49 %

uCi /cc

1.0213E-15 9.3436E-16

DPM OF ALIQUOT 2.537E-01

Saved answer = 2.537E-01 91.49% (DRM of aliquot)

$$(1.65 \times 9.344 + 10.21) E-16 = < 25.6 E-16 \\ = < 2.6 E-15 \\ \sim < 3 E-15$$

23-SEP-91
16: 54: 14

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 67

10-4

55
E1-A

Reviewed Date 9-4

O

Counter
Length of count LBG 3
Gross counts = 50.0 Min.
50.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
266.943	50.	50.0	1.00	0.454	0.55	0.59	0.59

Elapsed time (days) = 46.651
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1100E+08 cc

Product (1X2X3X4) = 1.110000E+08

C-zero 5.3056E-09	P-factor 3.7520	dpm/cc 1.9906E-08	1 sigma dpm error 5.5265E-09	percent sigma 27.76 %
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uCi /cc

8.9669E-15 2.4894E-15

DPM OF ALIQUOT 2.210E+00

Saved answer = 2.210E+00 27.76% (DPM of aliquot)

(9.0±5.0)E-15

BECAUSE OF SMALL COUNT RATE
LESS THAN VALUE IS REPORTED

$$(1.65 \times 2.4894 + 8.9669)E-15 \\ = < 1.3 \times 10^{-14}$$

24-SEP-91
08:14:53

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701- 69

10-6

55
FB-7

Reviewed Date 9-24

Counter 0
Length of count GAW 21
Gross counts = 53.4 Min.
3.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
264.194	3.	53.4	0.06	0.077	-0.02	-0.07	-0.07

Elapsed time (days) = 43.902
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.7400 (recovery = 0.0000 mgs)
Aliquot (4) = 1.000 smpl

Product (1X2X3X4) = 7.400000E-01

C-zero	P-factor	dpm/smpl	1 sigma
-9.4752E-02	1.0000	-9.4752E-02	dpm error percent sigma
			-1.5338E-01 161.88 %

*** UNITS CONVERSION FAILED - INCOMPATIBLE UNITS ***
Check units of aliquot and final answer

DPM OF ALIQUOT -9.475E-02

Saved answer = -9.475E-02 -161.88% (DPM of aliquot)

$$(1.65 \times 1.534) \times 10^{-1} = < 2.5 \times 10^{-1} \frac{\text{dpm}}{\text{sample}} \times \frac{\text{pc}}{2.22 \text{dpm}} \times 10^6 \frac{\text{mc}}{\text{pc}}$$

$$= < 1.1 \times 10^{-7} \frac{\text{mc}}{\text{sample}}$$

23-SEP-91
16: 54: 33

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 6B

10-5

55
D5-B

Reviewed Date 9-27

O

Counter LBG 4
Length of count 50.0 Min.
Gross counts = 51.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
266.943	51.	50.0	1.02	0.818	0.20	0.20	0.20

Elapsed time (days) = 46.651
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 1.0000 (recovery = 0.0000 mgs)
Aliquot (4)= 1.1190E+08 cc
Product (1X2X3X4) = 1.119000E+08

C-zero	P-factor	dpm/cc	1 sigma
1.8214E-09	3.7520	6.8339E-09	dpm error percent sigma
		5.8683E-09	85.87 %

uCi /cc

3.0783E-15 2.6434E-15

DPM OF ALIQUOT 7.647E-01

P

Saved answer = 7.647E-01 85.87% (DPM of aliquot)

$$\begin{aligned} (1.65 \times 2.643 + 3.08) E-15 &= < 7.4 E-15 \\ &= < 7.4 E-14 \\ &\sim < 1 \times 10^{-14} \end{aligned}$$

24-SEP-91
21:41:58

TMA Corporation
Gross Alpha Data
AUTOD V 1.03

8701- 71

11-1

55
CB-A

0

Reviewed ✓ Date 10/4

Counter
Length of count
Gross counts =

GAW 21
68.9 Min.
3.

NO SAMPLE WEIGHT

~~RF~~ NG

Zero time 268.021 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
268.021	3.	68.9	0.04	0.079	-0.04	-0.12	-0.12

Elapsed time (days) = 0.000
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.5760 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1520E+08 cc

Product (1X2X3X4) = 6.635520E+07

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
-1.8078E-09	1.0000	-1.8078E-09	-1.3677E-09	75.65 %	

μ Ci /cc

-8.1432E-16 -6.1607E-16

DPM OF ALIQUOT -2.083E-01

Saved answer = -2.083E-01 -75.65% (DPM of aliquot)

$$(1.65 \times 6.1607) \times -16 = < 1.0 \times 10^{-15}$$

23-SEP-91
16: 55: 02

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 69

55
10-6 FB-7

0

Reviewed Date 9-4

Counter
Length of count LBG 9
Gross counts = 50.4 Min.
26.

NO SAMPLE WEIGHT

Zero time 220.292 91
Separation time 0.000 0

Total ash weight: 0.0000 mg

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
266.943	26.	50.4	0.52	0.501	0.01	0.01	0.01

Elapsed time (days) = 46.651
Lambda = 0.000E-01 Reciprocal days
exp(-lambda x t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 1.0000 (recovery = 0.0000 mg)
Aliquot (4)= 1.000 smpl

Product (1X2X3X4) = 1.000000E+00

C-zero	P-factor	dpm/smpl	1 sigma
1.3867E-02	3.7520	5.2029E-02	dpm error percent sigma
		4.2018E-01	807.59 %

*** UNITS CONVERSION FAILED - INCOMPATIBLE UNITS ***
Check units of aliquot and final answer

DPM OF ALIQUOT 5.203E-02

P

Saved answer = 5.203E-02 807.59% (DPM of aliquot)

$$\begin{aligned} (1.65 \times 4.202) \times 10^{-6} &= < 6.9 \times 10^{-1} \frac{\text{dpm}}{\text{sample}} \times \frac{\text{PCi}}{2.22 \text{dpm}} \times \frac{10^6 \text{ mCi}}{\text{PCi}} \\ &= < 3.1 \times 10^{-7} \frac{\text{mCi}}{\text{sample}} \end{aligned}$$

24-SEP-91
21:42:21

TMA Corporation
Gross Alpha Data
AUTOD V 1.03

8701- 72

11-2 55
D7-A

Reviewed 2/22 Date 10/4

0

Counter
Length of count
Gross counts =

GAW 21
42.9 Min.
1.

NO SAMPLE WEIGHT

Zero time 268.070 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
268.070	1.	42.9	0.02	0.079	-0.06	-0.19	-0.19

Elapsed time (days) = 0.000
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 0.5760 (recovery = 0.0000 mgs)
Aliquot (4)= 1.1130E+08 cc

Product (1X2X3X4) = 6.410880E+07

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
-2.9367E-09	1.0000	-2.9367E-09	-1.3262E-09	45.16 %	

uCi /cc

-1.3228E-15 -5.9738E-16

DPM OF ALIQUOT -3.269E-01

Saved answer = -3.269E-01 -45.16% (DPM of aliquot)

$$(1.65 \times 5.9738) \times 10^{-16} = < 1 \times 10^{-15}$$

$\sim < 1 \times 10^{-15}$

23-SEP-91
15:29:24

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 71

55
CB-A

11-1

Reviewed T Date 9-24

0

Counter LBG 1
Length of count 50.3 Min.
Gross counts = 35.

NO SAMPLE WEIGHT

Zero time 266.897 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
266.897	35.	50.3	0.70	0.542	0.15	0.15	0.15

Elapsed time (days) = 0.000
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1520E+08 cc 11.52x10⁷

Product (1X2X3X4) = 1.152000E+08

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
1.2596E-09	3.7520	4.7259E-09		4.1354E-09	87.50 %

uCi /cc

2.1288E-15 1.8628E-15

DPM OF ALIQUOT 5.444E-01

Saved answer = 5.444E-01 87.50% (DPM of aliquot)

$$\begin{aligned} (1.65 \times 1.863 + 2.129) \times 10^{-15} &= 5.2 \times 10^{-15} \\ &= 5 \times 10^{-14} \\ &\sim 1 \times 10^{-14} \end{aligned}$$

24-SEP-91
21:42:53

TMA Corporation
Gross Alpha Data
AUTOD V 1.03

8701- 73

11-3

55
C6-A

Reviewed BB Date 10/4

O

Counter
Length of count
Gross counts =

GAW 21
50.0 Min.
0.

(RJ)
NB

NO SAMPLE WEIGHT

Zero time 248.101 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
248.149	0.	50.0	0.06	0.079	-0.02	-0.06	-0.06

Elapsed time (days) = 0.048
Lambda = 0.000E-01 Reciprocal days
 $\exp(-\lambda t)$ (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.5760 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1290E+08 cc

Product (1x2x3x4) = 6.503040E+07

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
-9.9065E-10	1.0000	-9.9065E-10	-1.8650E-09	188.26 %	

uCi /cc

-4.4624E-16 -8.4007E-16

DPM OF ALIQUOT -1.115E-01

Saved answer = -3.762E-01 -27.53% (DPM of aliquot)

(1.65x8.40) E-16 = <1.4 x 10⁻¹⁵

23-SEP-91
15: 29: 38

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 72

55

11-2

D7-A

0

Reviewed Date 9-24

Counter LBG 2
Length of count 50.3 Min.
Gross counts = 41.

NO SAMPLE WEIGHT

Zero time 266.897 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
266.897	41.	50.3	0.81	0.580	0.23	0.24	0.24

Elapsed time (days) = 0.000
Lambda = 0.000E-01 Reciprocal days
exp(-lambda x t) (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1130E+08 cc 1.13X10⁷

Product (1X2X3X4) = 1.113000E+08

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
2.1517E-09	3.7520	8.0731E-09		4.9871E-09	61.78 %

uCi /cc

3.6365E-15 2.2465E-15

DPM OF ALIQUOT 8.985E-01

Saved answer = 8.985E-01 61.78% (DPM of aliquot)

$$(1.65 \times 2.247 + 3.637) \times 10^{-15} = < 7.3 \times 10^{-15}$$
$$= < 7 \times 10^{-14}$$
$$\sim < 1 \times 10^{-14}$$

25-SEP-91
00:30:48

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701-74

11-4

55
D2-A

Reviewed ~~✓~~

Date ~~10/14~~

O

Counter
Length of count
Gross counts =

GAW 21
57.5 Min.
2.

NO SAMPLE WEIGHT

Zero time 268.185 91
Separation time 0.000 0

~~RFJ~~

(NG)

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
268.185	2.	57.5	0.03	0.079	-0.04	-0.15	-0.15

Elapsed time (days) = 0.000
Lambda = 0.000E-01 Reciprocal days
exp(-lambda x t) (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.5760 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1360E+08 cc

Product (1X2X3X4) = 6.543360E+07

C-zero	P-factor	dpm/cc	1 sigma
-2.2847E-09	1.0000	-2.2847E-09	dpm error percent sigma
			-1.3612E-09 59.58 %

uCi /cc

-1.0291E-15 -6.1314E-16

DPM OF ALIQUOT -2.595E-01

Saved answer = -2.595E-01 -59.58% (DPM of aliquot) JP

$$-(1.65 \times 6.1314) E-16 = < 1.0 \times 10^{-15}$$

23-SEP-91
15:29:52

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 73

11-3

55
C6-A

0

Reviewed Date 9-24

Counter LBG 3
Length of count 50.3 Min.
Gross counts = 26.

NO SAMPLE WEIGHT

Zero time 266.897 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
266.897	26.	50.3	0.52	0.454	0.06	0.07	0.07

Elapsed time (days) = 0.000
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1)= 1.000E+00
Chemical yield (2)= 1.0000
PPT. correction (3)= 1.0000 (recovery = 0.0000 mgs)
Aliquot (4)= 1.1290E+08 cc 1.1290E+08

Product (1X2X3X4) = 1.129000E+08

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
5.9917E-10	3.7520	2.2481E-09		4.1255E-09	183.51 %

uCi /cc

1.0126E-15 1.8583E-15

DPM OF ALIQUOT 2.538E-01

Saved answer = 2.538E-01 183.51% (DPM of aliquot)

$$(1.65 \times 1.858 + 1.013) E-15 = < 4.1 E-15 \\ = < 4.1 \times 10^{-14} \\ \sim < 1 \times 10^{-14}$$

25-SEP-91
00:31:27

TMA Corporation
Gross Alpha Data
AUTOB V 1.03

8701-75

11-5

55
C3-A

0

Reviewed 9/27 Date 10/4

Counter
Length of count
Gross counts =

GAW 21
53.5 Min.
6.

NO SAMPLE WEIGHT

RJ

NB

Zero time 268.226 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
268.226	6.	53.5	0.11	0.079	0.03	0.11	0.11

Elapsed time (days) = 0.000
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.5760 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1050E+08 cc

Product (1X2X3X4) = 6.364800E+07

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
1.7593E-09	1.0000	1.7593E-09		2.4825E-09	141.11 %
		uCi /cc			

DPM OF ALIQUOT 1.944E-01

Saved answer = 1.944E-01 141.11% (DPM of aliquot)

$$(1.65 \times 1.1182 + 0.79) E-15 = < 2.6 \times 10^{-15}$$

$$\sim < 3 \times 10^{-15}$$

23-SEP-91
15:30:07

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 74

55
11-4 D2-A

O

Reviewed Date 9-22

Counter LBG 4
Length of count 50.3 Min.
Gross counts = 61.

NO SAMPLE WEIGHT

Zero time 266.897 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	*ADJUSTED CPM	CORRECTED CPM
266.897	61.	50.3	1.21	0.818	0.39	0.40	0.40

Elapsed time (days) = 0.000
Lambda = 0.000E-01 Reciprocal days
exp(-lambda x t) (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 1.1360E+08 cc 11.36 × 10⁻⁷

Product (1X2X3X4) = 1.136000E+08

C-zero	P-factor	dpm/cc	1 sigma
3.5051E-09	3.7520	1.3151E-08	dpm error percent sigma
			6.1262E-09 46.58 %
		uCi /cc	

5.9240E-15 2.7595E-15

DPM OF ALIQUOT 1.494E+00

Saved answer = 1.494E+00 46.58% (DPM of aliquot)

$$(1.65 \times 2.760 + 5.924) E-15 = < 10.5 E-15 \\ = < 1.05 E-14 \\ < 1 \times 10^{-14}$$

26-SEP-91
21:30:17

TMA Corporation
Gross Alpha Data
AUTOD V 1.03

8701- 76

11-6

55
FB-8

O

Reviewed

Date 10/4

Counter
Length of count
Gross counts =

GAW 21
52.1 Min.
3.

RT

mb

NO SAMPLE WEIGHT

Zero time 270.032 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
270.032	3.	52.1	0.06	0.091	-0.03	-0.11	-0.11

Elapsed time (days) = 0.000
Lambda = 0.000E-01 Reciprocal days
exp(-lambda X t) (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 0.5760 (recovery = 0.0000 mgs)
Aliquot (4) = 1.000 smpl

Product (1X2X3X4) = 5.760000E-01

C-zero	F-factor	dpm/smpl	1 sigma	dpm error	percent sigma
-1.9712E-01	1.0000	-1.9712E-01	-	-2.0598E-01	104.50 %

*** UNITS CONVERSION FAILED - INCOMPATIBLE UNITS ***
Check units of aliquot and final answer

DPM OF ALIQUOT -1.971E-01

Saved answer = -1.971E-01 -104.50% (DPM of aliquot)

$$(1.65 \times 2.0598) E-01 \frac{dpm}{sample} = \left(3.4 \times 10^{-1} \frac{dpm}{sample} \times \frac{PC_i}{2.22} \times 10^6 \frac{mCi}{PC_i} \right) \\ < 1.5 \times 10^{-7} \frac{mCi}{sample}$$

$\nabla 2 \times 10^{-7}$

23-SEP-91
15:30:20

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701- 75

55

11-5

C3-A

Reviewed Date 9-24

0

Counter LBG 9
Length of count 50.3 Min.
Gross counts = 41.

NO SAMPLE WEIGHT

Zero time 266.897 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
266.897	41.	50.3	0.81	0.501	0.31	0.30	0.30

Elapsed time (days) = 0.000

Lambda = 0.000E-01 Reciprocal days

exp(-lambda X t) (1) = 1.000E+00

Chemical yield (2) = 1.0000

PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)

Aliquot (4) = 1.1050E+08 cc 11.05X10⁻⁷

Product (1X2X3X4) = 1.105000E+08

C-zero	P-factor	dpm/cc	1 sigma	dpm error	percent sigma
2.7034E-09	3.7520	1.0143E-08		4.5493E-09	44.85 %

uCi /cc

4.5690E-15 2.0492E-15

DPM OF ALIQUOT 1.121E+00

Saved answer = 1.121E+00 44.85% (DPM of aliquot)

$$\begin{aligned} (1.65 \times 2.049 + 4.569) \times 10^{-15} &= 7.9 \times 10^{-15} \\ &= 7.9 \times 10^{-14} \\ &\approx 1 \times 10^{-14} \end{aligned}$$

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23-SEP-91
15:30:34

TMA Corporation
Beta Counting Data
AUTOB V 1.03

8701-76

11-6

55
FB-8

O

Reviewed Date 9-24

Counter
Length of count
Gross counts =

LBG 10
50.3 Min.
21.

NO SAMPLE WEIGHT

Zero time 266.897 91
Separation time 0.000 0

Total ash weight: 0.0000 mgs

GMT TIME	GROSS COUNT	COUNTING TIME	TOTAL CPM	BKGD	NET CPM	ADJUSTED CPM	CORRECTED CPM
266.897	21.	50.3	0.42	0.591	-0.17	-0.18	-0.18

Elapsed time (days) = 0.000
Lambda = 0.000E-01 Reciprocal days
exp(-lambda x t) (1) = 1.000E+00
Chemical yield (2) = 1.0000
PPT. correction (3) = 1.0000 (recovery = 0.0000 mgs)
Aliquot (4) = 1.000 smp1
Product (1X2X3X4) = 1.000000E+00

C-zero P-factor
-1.7871E-01 3.7520
dpm/smp1 -6.7051E-01 1 sigma
dpm error -4.4564E-01 percent sigma
66.46 %

*** UNITS CONVERSION FAILED - INCOMPATIBLE UNITS ***
Check units of aliquot and final answer

DPM OF ALIQUOT -6.705E-01

P

Saved answer = -6.705E-01 -66.46% (DPM of aliquot)

$$\begin{aligned} (1.65 \times 4.456) \times 10^{-61} &= (-7.4 \times 10^{-61}) \frac{\text{dpm}}{\text{sample}} \times \frac{P_{\text{C}}}{2.22 \text{dpm}} \times 10^{-6} \frac{\mu\text{Ci}}{\text{P}_{\text{C}}} \\ &= (-3.3 \times 10^{-7}) \frac{\mu\text{Ci}}{\text{sample}} \\ &= (-3 \times 10^{-7}) \end{aligned}$$

NORMANDEAU ASSOCIATES

APPENDIX D.2.

Q.C. BACKUP FOR RADIOCHEMISTRY DATA

Interpretation of "Gross Counter Q.C. Status" Sheets

These sheets consist of two sections. The first is the status of the Q.C> parameters at the time the sheet is printed (date shown on the top line) and the second is a listing of all Q.C. counts taken since the last time the sheet was printed.

"Status at this time" section

This section has columns for Instrument ID (first column) and four QC parameters: The efficiency check (called the "Standard Factor") in the second column, the standard instrument background in the third column, an instrument background utilizing a 4.75 mg/cm^2 tantalum absorber and a background utilizing a 6.49 mg/cm^2 absorber. The standard background is used for all but special cases. Each QC parameter column consists of the value of the parameter and the decimal day of year (in Greenwich Mean Time) of the last count of that particular parameter (each parameter value is the average of all acceptable data in the previous ten counts). The two spaces between the value and the date of each value will be "NG" if the last count did not meet the acceptance criteria or "FC" if it did not meet the acceptance criteria but was manually forced to be accepted.

"Recent Q.C. counts" section

This section lists the data for individual Q.C. counts which have been taken since the previous time this sheet was printed. There are 9 columns as shown:

- | | |
|----------|--|
| Column 1 | Detector ID |
| Column 2 | Identification of the type of QC. SF is a standard factor and BK is a standard background. |
| Column 3 | The date the count was taken (in decimal day of year, Greenwich Mean Time). |
| Column 4 | Gross counts collected |
| Column 5 | Length of count in minutes. |
| Column 6 | The value of the QC parameter. |
| Column 7 | The one sigma error in the determined QC value. |
| Column 8 | The acceptance control limits determined from the previous ten counts. |
| Column 9 | A message will appear here if the QC value does not meet the acceptance criteria (FAIL) or if it does not meet the acceptance criteria but was manually forced to be accepted (FORCE). |

Gross Counter Q.C. Status

05:31:50 26-SEP-91

THU

✓9/26

Status at this time

Detector	SF	GMT	BK	GMT	BK4. 75	GMT.	BK6. 49
LBG	1	0. 947	268.	0. 542	265.	0. 968	185.
LBG	2	1. 020	268.	0. 580	265.	0. 672	185.
LBG	3	1. 074	269.	0. 453NG268.		0. 571	185.
LBG	4	1. 009	269.	0. 819NG268.		0. 782	185.
LBG	5	1. 056	268.	0. 560	267.	0. 854	185.
LBG	6	1. 003	268.	0. 513	267.	0. 770	185.
LBG	9	0. 952	268.	0. 501	265.	0. 574	185.
LBG	10	1. 031	268.	0. 591	265.	0. 689	185.
LBG	11	0. 997	268.	0. 509	265.	0. 599	185.
LBG	12	0. 987	268.	0. 591	265.	0. 692	185.
LBG	13	1. 057	268.	0. 504	265.	0. 822	185.
LBG	14	1. 084	268.	0. 589	265.	0. 736	185.
LBG	15	1. 042	268.	0. 637	265.	0. 746	185.
LBG	16	1. 011	268.	0. 502	265.	0. 605	185.
GAW	17	0. 223	268.	0. 040	268.	0. 000	0.
MEW	19	0. 986	268.	15. 379	268.	0. 666	123.
GAW	21	3. 388NG268.		0. 072	268.	0. 000	0.
2PI	22	2. 148	268.	0. 227	268.	0. 000	0.
GAW	23	3. 208	90.	0. 021	90.	0. 000	0.
GAW	24	2. 739	268.	0. 094	268.	0. 000	0.
2PI	25	2. 080	118.	0. 105.	118.	0. 000	0.
2PI	26	2. 326	118.	0. 233	113.	0. 000	0.
LSC	4	0. 000	0.	0. 000	0.	0. 000	0.
LSC	5	0. 000	0.	0. 000	0.	0. 000	0.
VLB	1	1. 100	190.	0. 289	190.	0. 000	0.
VLB	2	1. 100	190.	0. 246	190.	0. 000	0.
VLB	3	1. 105FC190.		0. 206	190.	0. 000	0.
VLB	4	1. 109	190.	0. 291	190.	0. 000	0.
VLB	5	1. 057	190.	0. 217	190.	0. 000	0.
VLB	6	1. 069	190.	0. 246	190.	0. 000	0.
VLB	7	1. 091	190.	0. 195	190.	0. 000	0.
VLB	8	1. 213	190.	0. 251	190.	0. 000	0.
GAW	101	1. 143	268.	0. 090	266.	0. 000	0.
GAW	102	1. 113	268.	0. 071	266.	0. 000	0.
GAW	103	1. 082	268.	0. 072	266.	0. 000	0.
GAW	104	1. 026	268.	0. 077	266.	0. 000	0.
GAW	105	1. 012	268.	0. 159	266.	0. 000	0.
GAW	106	1. 042	268.	0. 128	268.	0. 000	0.
GAW	107	1. 089	268.	0. 113	266.	0. 000	0.
GAW	108	1. 086	268.	0. 123	266.	0. 000	0.
GAW	109	1. 069	268.	0. 085	266.	0. 000	0.
GAW	110	1. 025	268.	0. 074	266.	0. 000	0.
GAW	111	1. 094	268.	0. 143	266.	0. 000	0.
GAW	112	1. 086	268.	0. 084	266.	0. 000	0.
GAW	113	1. 079	268.	0. 130	266.	0. 000	0.
GAW	114	1. 026	268.	0. 077	266.	0. 000	0.
GAW	115	1. 046	268.	0. 130	266.	0. 000	0.
GAW	116	1. 000	268.	0. 085	266.	0. 000	0.
GRB	101	0. 986	268.	0. 969	266.	0. 000	0.
GRB	102	0. 999	268.	1. 344	266.	0. 000	0.
GRB	103	0. 978	268.	1. 879	266.	0. 000	0.
GRB	104	0. 973	268.	0. 990	266.	0. 000	0.
GRB	105	1. 009	268.	1. 256	266.	0. 000	0.
GRB	106	1. 022	268.	1. 147	268.	0. 000	0.

GRB	107	0.	985	268.	0.	954	266.	0.	0.000	0.	0.000	0.
GRB	108	0.	991	268.	1.	228	266.	0.	0.000	0.	0.000	0.
GRB	109	1.	004	268.	0.	933	266.	0.	0.000	0.	0.000	0.
GRB	110	1.	001	268.	1.	724	266.	0.	0.000	0.	0.000	0.
GRB	111	0.	987	268.	1.	025	266.	0.	0.000	0.	0.000	0.
GRB	112	0.	970	268.	1.	168	266.	0.	0.000	0.	0.000	0.
GRB	113	1.	046	268.	0.	907	266.	0.	0.000	0.	0.000	0.
GRB	114	1.	016	268.	0.	957	266.	0.	0.000	0.	0.000	0.
GRB	115	0.	982	268.	0.	935	266.	0.	0.000	0.	0.000	0.
GRB	116	1.	055	268.	0.	981	266.	0.	0.000	0.	0.000	0.

Recent Q. C. counts

Detector	QC	Date	Gross Counts	Min.	Q. C. Value	Sigma	Control limits	
LBG	3	BK	268. 256	4389.	494.40	9.889	0.141	0.382 - 0.525 FAIL
LBG	4	BK	268. 256	4948.	494.40	10.008	0.142	0.538 - 1.098 FAIL
MEW	19	BK	268. 289	6693.	452.30	14.798	0.181	14.278 - 16.637
GAW	17	BK	268. 289	23.	453.10	0.051	0.011	0.012 - 0.063
GAW	21	BK	268. 289	30.	453.10	0.066	0.012	0.035 - 0.115
ZPI	22	BK	268. 289	92.	453.10	0.203	0.021	0.152 - 0.307
GAW	24	BK	268. 289	49.	453.10	0.106	0.015	0.045 - 0.135
GRB	106	BK	268. 352	440.	400.00	1.100	0.052	0.983 - 1.342
GAW	106	BK	268. 352	55.	400.00	0.138	0.019	0.092 - 0.166
LBG	1	SF	268. 639	28060.	10.22	0.945	0.006	0.918 - 0.975
LBG	2	SF	268. 639	28345.	10.22	1.018	0.006	0.989 - 1.050
LBG	3	SF	268. 639	28170.	10.22	1.073	0.007	0.846 - 1.256
LBG	4	SF	268. 639	22329.	10.22	1.020	0.007	0.928 - 1.070
LBG	5	SF	268. 639	30538.	10.22	0.954	0.005	0.923 - 0.980
LBG	6	SF	268. 639	28534.	10.22	1.029	0.006	0.999 - 1.061
LBG	7	SF	268. 639	25201.	10.22	0.997	0.006	0.967 - 1.027
LBG	8	SF	268. 639	25312.	10.22	0.990	0.006	0.957 - 1.017
LBG	9	SF	268. 639	23701.	10.22	1.061	0.007	1.025 - 1.088
LBG	10	SF	268. 639	20378.	10.22	1.077	0.008	1.053 - 1.118
LBG	11	SF	268. 639	25201.	10.22	1.039	0.007	1.011 - 1.074
MEW	19	SF	268. 639	4400344.	10.22	1.000	0.006	0.947 - 1.077
GAW	17	SF	268. 637	198603.	10.88	0.986	0.001	0.956 - 1.016
GAW	21	SF	268. 637	186119.	10.88	3.236	0.007	3.127 - 3.320
ZPI	22	SF	268. 637	142244.	10.88	3.394	0.008	3.279 - 3.482
GAW	24	SF	268. 637	147821.	10.88	2.140	0.005	2.084 - 2.213
GRB	101	SF	268. 654	12672.	10.00	0.974	0.008	2.657 - 2.822
GAW	101	SF	268. 654	8960.	10.00	1.153	0.012	0.954 - 1.020
GRB	102	SF	268. 655	14564.	10.00	0.998	0.008	0.969 - 1.029
GAW	102	SF	268. 656	6724.	10.00	1.089	0.013	1.070 - 1.166
GRB	103	SF	268. 656	12049.	10.00	0.980	0.008	0.946 - 1.010
GAW	103	SF	268. 656	8981.	10.00	1.081	0.011	1.047 - 1.118
GAW	104	SF	268. 656	13149.	10.00	0.974	0.009	0.944 - 1.002
GRB	105	SF	268. 656	10465.	10.00	1.045	0.010	0.998 - 1.071
GAW	105	SF	268. 656	12860.	10.00	1.013	0.009	0.978 - 1.039
GRB	106	SF	268. 656	7364.	10.00	1.021	0.012	0.980 - 1.041
GAW	106	SF	268. 656	12772.	10.00	1.017	0.009	0.992 - 1.054
GRB	107	SF	268. 656	7514.	10.00	1.022	0.012	1.013 - 1.076
GAW	107	SF	268. 656	13769.	10.00	0.991	0.008	0.954 - 1.013
GRB	108	SF	268. 656	8504.	10.00	1.110	0.012	1.054 - 1.120
GAW	108	SF	268. 656	13363.	10.00	0.998	0.009	0.960 - 1.020
GRB	109	SF	268. 656	8026.	10.00	1.108	0.012	1.039 - 1.129
GAW	109	SF	268. 656	13047.	10.00	1.022	0.009	0.965 - 1.039
GRB	110	SF	268. 656	7031.	10.00	1.090	0.013	1.026 - 1.107
GAW	110	SF	268. 656	14515.	10.00	1.007	0.008	0.962 - 1.038
GRB	111	SF	268. 656	10568.	10.00	1.044	0.010	0.992 - 1.053
			268. 656	14873.	10.00	0.994	0.008	0.954 - 1.021

GAW	111	SF	268.656	7386.	10.00	1.105	0.013	1.048	-	1.137
GRB	112	SF	268.656	14507.	10.00	0.971	0.008	0.941	-	0.999
GAW	112	SF	268.656	5936.	10.00	1.104	0.014	1.030	-	1.137
GRB	113	SF	268.656	13069.	10.00	1.043	0.009	1.014	-	1.077
GAW	113	SF	268.656	8343.	10.00	1.096	0.012	1.044	-	1.108
GRB	114	SF	268.656	14348.	10.00	1.015	0.008	0.967	-	1.062
GAW	114	SF	268.656	10141.	10.00	1.033	0.010	0.996	-	1.058
GRB	115	SF	268.656	15432.	10.00	0.992	0.008	0.942	-	1.022
GAW	115	SF	268.656	10023.	10.00	1.044	0.010	1.008	-	1.087
GRB	116	SF	268.656	14454.	10.00	1.051	0.009	1.024	-	1.088
GAW	116	SF	268.656	11243.	10.00	0.988	0.009	0.972	-	1.032
LBG	3	SF	269.010	11772.	5.60	1.060	0.010	1.022	-	1.124
LBG	4	SF	269.010	12423.	5.60	0.990	0.009	0.981	-	1.042

Gross Counter Q. C. Status

05:33:24 24-SEP-91

Status at this time

TUE
T 9/27

Detector	SF	GMT	BK	GMT	BK4.75	GMT	BK6.49
LBG	1	0. 945	266.	0. 542	265.	0. 968	185.
LBG	2	1. 020	266.	0. 580	265.	0. 672	185.
LBG	3	1. 079	266.	0. 454	265.	0. 571	185.
LBG	4	1. 010	266.	0. 818	265.	0. 782	185.
LBG	5	0. 890NG266.		0. 553	266.	0. 854	185.
LBG	6	0. 950FC266.		0. 600NG266.		0. 770	185.
LBG	9	0. 952	266.	0. 501	265.	0. 574	185.
LBG	10	1. 029	266.	0. 591	265.	0. 689	185.
LBG	11	0. 997	266.	0. 509	265.	0. 599	185.
LBG	12	0. 987	266.	0. 591	265.	0. 692	185.
LBG	13	1. 056	266.	0. 504	265.	0. 822	185.
LBG	14	1. 086	266.	0. 589	265.	0. 736	185.
LBG	15	1. 040	266.	0. 637	265.	0. 746	185.
LBG	16	1. 012	266.	0. 502	265.	0. 605	185.
GAW	17	3. 219	266.	0. 037	265.	0. 000	0.
MEW	19	0. 986	266.	15. 427	265.	0. 666	123.
GAW	21	3. 380	266.	0. 078	265.	0. 000	0.
2PI	22	2. 148	266.	0. 225	265.	0. 000	0.
GAW	23	3. 208	90.	0. 021	90.	0. 000	0.
GAW	24	2. 741	266.	0. 084	265.	0. 000	0.
2PI	25	2. 083	118.	0. 105	118.	0. 000	0.
2PI	26	2. 326	118.	0. 233	113.	0. 000	0.
LSC	4	0. 000	0.	0. 000	0.	0. 000	0.
LSC	5	0. 000	0.	0. 000	0.	0. 000	0.
VLB	1	1. 100	190.	0. 289	190.	0. 000	0.
VLB	2	1. 130	190.	0. 246	190.	0. 000	0.
VLB	3	1. 105FC190.		0. 236	190.	0. 000	0.
VLB	4	1. 109	190.	0. 291	190.	0. 000	0.
VLB	5	1. 057	190.	0. 219	190.	0. 000	0.
VLB	6	1. 068	190.	0. 246	190.	0. 000	0.
VLB	7	1. 091	190.	0. 196	190.	0. 000	0.
VLB	8	1. 213	190.	0. 251	190.	0. 000	0.
GAW	101	1. 148	266.	0. 083NC266.		0. 000	0.
GAW	102	1. 120	266.	0. 070	266.	0. 000	0.
GAW	103	1. 080	266.	0. 071	266.	0. 000	0.
GAW	104	1. 034	266.	0. 079	266.	0. 000	0.
GAW	105	1. 011	266.	0. 154NG266.		0. 000	0.
GAW	106	1. 045	266.	0. 247	266.	0. 000	0.
GAW	107	1. 088	266.	0. 102NG266.		0. 000	0.
GAW	108	1. 087	266.	0. 118	266.	0. 000	0.
GAW	109	1. 066	266.	0. 083	266.	0. 000	0.
GAW	110	1. 024	266.	0. 072NG266.		0. 000	0.
GAW	111	1. 095	266.	0. 146	266.	0. 000	0.
GAW	112	1. 081	266.	0. 087	266.	0. 000	0.
GAW	113	1. 075	264.	0. 131NG266.		0. 000	0.
GAW	114	1. 027	264.	0. 072	266.	0. 000	0.
GAW	115	1. 044	264.	0. 127	266.	0. 000	0.
GAW	116	1. 000	264.	0. 085	266.	0. 000	0.
GRB	101	0. 987	266.	0. 972	266.	0. 000	0.
GRB	102	0. 998	266.	1. 341NG266.		0. 000	0.
GRB	103	0. 979	266.	1. 879	266.	0. 000	0.
GRB	104	0. 974	266.	0. 996	266.	0. 000	0.
GRB	105	1. 008	266.	1. 267	266.	0. 000	0.
GRB	106	1. 025	266.	1. 173	266.	0. 000	0.

GRB	107	0.	985	266.	0. 943NG266.	0. 000	0.	0. 000	0.
GRB	108	0.	992	266.	1. 249 266.	0. 000	0.	0. 000	0.
GRB	109	1.	001	266.	0. 936 266.	0. 000	0.	0. 000	0.
GRB	110	1.	003	266.	1. 717 266.	0. 000	0.	0. 000	0.
GRB	111	0.	988	266.	1. 015 266.	0. 000	0.	0. 000	0.
GRB	112	0.	969	266.	1. 175 266.	0. 000	0.	0. 000	0.
GRB	113	1.	044	264.	0. 909 266.	0. 000	0.	0. 000	0.
GRB	114	1.	014	264.	0. 958NG266.	0. 000	0.	0. 000	0.
GRB	115	0.	984	264.	0. 941 266.	0. 000	0.	0. 000	0.
GRB	116	1.	056	264.	0. 980 266.	0. 000	0.	0. 000	0.

Recent Q. C. counts

Detector	QC	Date	Gross Counts		Q. C.		Control limits	
			Min.	Value	Sigma			
LBG	1	BK	265. 769	625.	1119. 60	0. 558	0. 022	0. 465 - 0. 609
LBG	2	BK	265. 769	631.	1119. 60	0. 564	0. 022	0. 486 - 0. 677
LBG	3	BK	265. 769	520.	1119. 60	0. 464	0. 020	0. 378 - 0. 528
LBG	4	BK	265. 769	1084.	1119. 60	0. 968	0. 029	0. 569 - 1. 031
LBG	9	BK	265. 769	568.	1119. 60	0. 507	0. 021	0. 416 - 0. 591
LBG	10	BK	265. 769	668.	1119. 60	0. 597	0. 023	0. 531 - 0. 647
LBG	11	BK	265. 769	572.	1119. 60	0. 511	0. 021	0. 417 - 0. 596
LBG	12	BK	265. 769	700.	1119. 60	0. 625	0. 024	0. 525 - 0. 652
LBG	13	BK	265. 769	560.	1119. 60	0. 500	0. 021	0. 432 - 0. 575
LBG	14	BK	265. 769	643.	1119. 60	0. 574	0. 023	0. 521 - 0. 671
LBG	15	BK	265. 769	742.	1119. 60	0. 663	0. 024	0. 512 - 0. 756
LBG	16	BK	265. 769	629.	1119. 60	0. 562	0. 022	0. 406 - 0. 583
MEW	19	BK	265. 001	33320.	2122. 40	15. 699	0. 086	14. 185 - 16. 669
GAW	17	BK	265. 001	91.	2122. 90	0. 043	0. 004	0. 006 - 0. 072
GAW	21	BK	265. 001	176.	2122. 90	0. 083	0. 006	0. 025 - 0. 132
2PI	22	BK	265. 001	453.	2122. 90	0. 213	0. 010	0. 148 - 0. 305
GAW	24	BK	265. 001	213.	2122. 90	0. 100	0. 007	0. 034 - 0. 128
GRB	109	BK	266. 558	99.	100. 00	0. 990	0. 099	0. 859 - 0. 997
GAW	109	BK	266. 558	11.	100. 00	0. 110	0. 033	0. 009 - 0. 150
GRB	110	BK	266. 558	183.	100. 00	1. 830	0. 135	1. 516 - 1. 910
GAW	110	BK	266. 558	11.	100. 00	0. 110	0. 033	0. 038 - 0. 105 FAIL
GRB	111	BK	266. 558	104.	100. 00	1. 040	0. 102	0. 968 - 1. 050
GAW	111	BK	266. 558	12.	100. 00	0. 120	0. 035	0. 058 - 0. 230
GRB	112	BK	266. 558	127.	100. 00	1. 270	0. 113	1. 040 - 1. 278
GAW	112	BK	266. 558	12.	100. 00	0. 120	0. 035	0. 040 - 0. 127
GRB	113	BK	266. 558	97.	100. 00	0. 970	0. 098	0. 815 - 0. 998
GAW	113	BK	266. 558	23.	100. 00	0. 230	0. 048	0. 039 - 0. 227 FAIL
GRB	114	BK	266. 558	123.	100. 00	1. 230	0. 111	0. 838 - 1. 074 FAI.
GAW	114	BK	266. 558	6.	100. 00	0. 060	0. 024	0. 018 - 0. 135
GRB	115	BK	266. 558	104.	100. 00	1. 040	0. 102	0. 746 - 1. 128
GAW	115	BK	266. 558	15.	100. 00	0. 150	0. 039	0. 071 - 0. 180
GRB	116	BK	266. 558	114.	100. 00	1. 140	0. 107	0. 730 - 1. 203
GAW	116	BK	266. 558	10.	100. 00	0. 100	0. 032	0. 040 - 0. 134
GRB	101	BK	266. 558	107.	100. 00	1. 070	0. 103	0. 803 - 1. 119
GAW	101	BK	266. 558	22.	100. 00	0. 220	0. 047	0. 049 - 0. 132 FAIL
GRB	102	BK	266. 558	159.	100. 00	1. 590	0. 126	1. 165 - 1. 518 FAIL
GAW	102	BK	266. 558	6.	100. 00	0. 060	0. 024	0. 014 - 0. 125
GRB	103	BK	266. 558	189.	100. 00	1. 890	0. 137	1. 767 - 1. 993
GAW	103	BK	266. 558	7.	100. 00	0. 070	0. 026	0. 014 - 0. 126
GRB	104	BK	266. 558	94.	100. 00	0. 940	0. 097	0. 922 - 1. 086
GAW	104	BK	266. 558	11.	100. 00	0. 110	0. 033	0. 034 - 0. 113
GRB	105	BK	266. 558	146.	100. 00	1. 460	0. 121	1. 018 - 1. 468
GAW	105	BK	266. 558	22.	100. 00	0. 220	0. 047	0. 095 - 0. 213 FAI.
GRB	106	BK	266. 558	120.	100. 00	1. 200	0. 110	1. 007 - 1. 348
GAW	106	BK	266. 558	16.	100. 00	0. 160	0. 040	-0. 179 - 0. 664
GRB	107	BK	266. 558	120.	100. 00	1. 200	0. 110	0. 776 - 1. 103 FAIL
GAW	107	BK	266. 558	22.	100. 00	0. 220	0. 047	-0. 002 - 0. 204 FAIL

GRB	108	BK	266.558	118.	100.00	1.180	0.109	0.992	-	1.562
GAW	108	BK	266.558	8.	100.00	0.080	0.028	0.053	-	0.190
GRB	101	SF	266.633	13793.	10.00	0.979	0.008	0.956	-	1.019
GAW	101	SF	266.633	9119.	10.00	1.133	0.012	1.110	-	1.191
GRB	102	SF	266.633	14662.	10.00	0.991	0.008	0.968	-	1.028
GAW	102	SF	266.633	6473.	10.00	1.131	0.014	1.072	-	1.164
GRB	103	SF	266.633	15288.	10.00	0.965	0.008	0.946	-	1.011
LBG	1	SF	266.636	30653.	11.34	0.960	0.005	0.915	-	0.972
GAW	103	SF	266.633	8886.	10.00	1.093	0.012	1.038	-	1.118
LBG	2	SF	266.636	31426.	11.34	1.019	0.006	0.989	-	1.050
LBG	3	SF	266.636	23264.	11.34	1.087	0.007	1.046	-	1.110
LBG	4	SF	266.636	24615.	11.34	1.013	0.006	0.979	-	1.040
LBG	9	SF	266.636	33953.	11.34	0.952	0.005	0.924	-	0.981
LBG	10	SF	266.636	31852.	11.34	1.023	0.006	0.999	-	1.061
LBG	11	SF	266.636	27824.	11.34	1.002	0.006	0.968	-	1.028
LBG	12	SF	266.636	27959.	11.34	0.994	0.006	0.957	-	1.016
LBG	13	SF	266.636	26460.	11.34	1.054	0.006	1.025	-	1.088
LBG	14	SF	266.636	22852.	11.34	1.065	0.007	1.053	-	1.119
LBG	15	SF	266.636	26492.	11.34	1.043	0.006	1.007	-	1.070
MEW	19	SF	266.636	544103.	11.34	1.046	0.006	0.952	-	1.063
GRB	104	SF	266.633	13153.	10.00	0.974	0.008	0.945	-	1.003
GAW	104	SF	266.633	10462.	10.00	1.046	0.010	1.002	-	1.065
GRB	105	SF	266.633	12886.	10.00	1.012	0.009	0.978	-	1.038
GAW	105	SF	266.633	7391.	10.00	1.018	0.012	0.980	-	1.040
GRB	106	SF	266.633	12560.	10.00	1.026	0.009	0.991	-	1.061
GAW	17	SF	266.638	100790.	9.98	3.199	0.010	3.121	-	3.314
GAW	21	SF	266.638	93248.	9.98	3.382	0.011	3.274	-	3.476
ZPI	22	SF	266.638	80959.	9.98	2.153	0.008	2.083	-	2.212
GAW	24	SF	266.638	99153.	9.98	2.746	0.009	2.658	-	2.823
GAW	106	SF	266.633	7331.	10.00	1.048	0.012	1.015	-	1.077
GRB	107	SF	266.633	13921.	10.00	0.980	0.008	0.956	-	1.015
GAW	107	SF	266.633	8839.	10.00	1.081	0.011	1.044	-	1.127
GRB	108	SF	266.633	13508.	10.00	0.988	0.009	0.965	-	1.025
GAW	108	SF	266.633	8125.	10.00	1.094	0.012	1.052	-	1.119
GRB	109	SF	266.633	13332.	10.00	1.001	0.009	0.961	-	1.038
GAW	109	SF	266.633	7071.	10.00	1.083	0.013	1.029	-	1.098
GRB	110	SF	266.633	14554.	10.00	1.004	0.008	0.958	-	1.043
GAW	110	SF	266.633	10790.	10.00	1.022	0.010	0.993	-	1.054
GRB	111	SF	266.633	15132.	10.00	0.977	0.008	0.960	-	1.019
GAW	111	SF	266.633	7510.	10.00	1.087	0.013	1.057	-	1.135
GRB	112	SF	266.633	14553.	10.00	0.968	0.008	0.938	-	1.006
GAW	112	SF	266.633	5941.	10.00	1.103	0.014	1.043	-	1.114
LBG	5	BK	265.021	1382.	2260.50	0.603	0.016	0.441	-	0.664
LBG	6	BK	265.021	0.	2260.50	0.000	0.000	0.469	-	0.750 FAIL
LBG	5	SF	266.876	20435.	10.31	1.228	0.009	0.850	-	0.937 FAIL
LBG	6	SF	266.876	22698.	10.31	1.012	0.007	0.912	-	0.973 FAIL
LSC	4	Ni LSC	266.962	10000.	2.354255.320	42.553		2.673	-	17.970 FAIL
LSC	4	Rn LSC	267.038	298.	100.00	2.980	0.173	1.881	-	4.257
LBG	5	SF	266.886	23662.	11.88	1.221	0.008	0.847	-	0.937 FAIL
LBG	6	SF	266.886	26332.	11.88	1.005	0.006	0.910	-	0.974 FORCE
LBG	5	BK	266.896	59.	100.01	0.590	0.077	0.453	-	0.648
LBG	6	BK	266.896	46.	100.01	0.460	0.068	0.460	-	0.752 FAIL

Gross Counter Q. C. Status

05:30:27 23-SEP-91

MON

✓ 9/23

Status at this time

Detector	SF	GMT	BK	GMT	BK4, 75	GMT	BK6, 49	
LBG 1	0. 943	265.	0. 537	258.	0. 968	185.	0. 605	297.
LBG 2	1. 020	265.	0. 582	258.	0. 672	185.	0. 650	297.
LBG 3	1. 078	265.	0. 453	258.	0. 571	185.	0. 482	297.
LBG 4	1. 009	265.	0. 800	258.	0. 782	185.	0. 752	297.
LBG 5	0. 894NG264.		0. 553	264.	0. 854	185.	0. 578	281.
LBG 6	0. 943NG264.		0. 610NG264.		0. 770	185.	0. 665	281.
LBG 9	0. 953	265.	0. 504	258.	0. 574	185.	0. 591	297.
LBG 10	1. 030	265.	0. 589	258.	0. 689	185.	0. 677	297.
LBG 11	0. 998	265.	0. 507	258.	0. 599	185.	0. 572	297.
LBG 12	0. 986	265.	0. 588	258.	0. 692	185.	0. 601	297.
LBG 13	1. 057	265.	0. 503	258.	0. 822	185.	0. 574	297.
LBG 14	1. 086	265.	0. 596	258.	0. 736	185.	0. 633	297.
LBG 15	1. 038	265.	0. 634	258.	0. 746	185.	0. 677	297.
LBG 16	1. 008	265.	0. 494	260.	0. 605	185.	0. 579FC297.	
GAW 17	3. 217	264.	0. 039	264.	0. 000	0.	0. 000	0.
MEW 19	0. 986	264.	15. 427	264.	0. 666	123.	0. 777	123.
GAW 21	3. 375	264.	0. 079	264.	0. 000	0.	0. 000	0.
ZPI 22	2. 147	264.	0. 226	264.	0. 000	0.	0. 000	0.
GAW 23	3. 208	90.	0. 021	90.	0. 000	0.	0. 000	0.
GAW 24	2. 741	264.	0. 081	264.	0. 000	0.	0. 000	0.
ZPI 25	2. 083	118.	0. 105	118.	0. 000	0.	0. 000	0.
ZPI 26	2. 326	118.	0. 233	113.	0. 000	0.	0. 000	0.
LSC 4	0. 000	0.	0. 000	0.	0. 000	0.	0. 000	0.
LSC 5	0. 000	0.	0. 000	0.	0. 000	0.	0. 000	0.
VLB 1	1. 100	190.	0. 289	190.	0. 000	0.	0. 000	0.
VLB 2	1. 130	190.	0. 246	190.	0. 000	0.	0. 000	0.
VLB 3	1. 105FC190.		0. 236	190.	0. 000	0.	0. 000	0.
VLB 4	1. 109	190.	0. 291	190.	0. 000	0.	0. 000	0.
VLB 5	1. 057	190.	0. 219	190.	0. 000	0.	0. 000	0.
VLB 6	1. 068	190.	0. 245	190.	0. 000	0.	0. 000	0.
VLB 7	1. 091	190.	0. 195	190.	0. 000	0.	0. 000	0.
VLB 8	1. 213	190.	0. 251	190.	0. 000	0.	0. 000	0.
GAW 101	1. 150	264.	0. 090	264.	0. 000	0.	0. 000	0.
GAW 102	1. 118	264.	0. 069	264.	0. 000	0.	0. 000	0.
GAW 103	1. 078	264.	0. 070	264.	0. 000	0.	0. 000	0.
GAW 104	1. 033	264.	0. 073	264.	0. 000	0.	0. 000	0.
GAW 105	1. 010	264.	0. 154	264.	0. 000	0.	0. 000	0.
GAW 106	1. 046	264.	0. 242	264.	0. 000	0.	0. 000	0.
GAW 107	1. 085	264.	0. 101	264.	0. 000	0.	0. 000	0.
GAW 108	1. 085	264.	0. 121	264.	0. 000	0.	0. 000	0.
GAW 109	1. 063	264.	0. 080	264.	0. 000	0.	0. 000	0.
GAW 110	1. 023	264.	0. 072	264.	0. 000	0.	0. 000	0.
GAW 111	1. 096	264.	0. 144	264.	0. 000	0.	0. 000	0.
GAW 112	1. 079	264.	0. 083	264.	0. 000	0.	0. 000	0.
GAW 113	1. 075	264.	0. 133	254.	0. 000	0.	0. 000	0.
GAW 114	1. 027	264.	0. 077	264.	0. 000	0.	0. 000	0.
GAW 115	1. 044	264.	0. 125	264.	0. 000	0.	0. 000	0.
GAW 116	1. 000	264.	0. 087	264.	0. 000	0.	0. 000	0.
GRB 101	0. 988	264.	0. 961	264.	0. 000	0.	0. 000	0.
GRB 102	0. 998	264.	1. 341	264.	0. 000	0.	0. 000	0.
GRB 103	0. 979	264.	1. 380	264.	0. 000	0.	0. 000	0.
GRB 104	0. 974	264.	1. 004	264.	0. 000	0.	0. 000	0.
GRB 105	1. 008	264.	1. 243	264.	0. 000	0.	0. 000	0.
GRB 106	1. 026	264.	1. 178	264.	0. 000	0.	0. 000	0.

GRB	107	0. 985	264.	0. 940	264.	0. 000	0.	0. 000	0.
GRB	108	0. 995NG	264.	1. 277	264.	0. 000	0.	0. 000	0.
GRB	109	0. 999	264.	0. 928	264.	0. 000	0.	0. 000	0.
GRB	110	1. 001	264.	1. 713	264.	0. 000	0.	0. 000	0.
GRB	111	0. 989	264.	1. 009NG	264.	0. 000	0.	0. 000	0.
GRB	112	0. 972	264.	1. 159	264.	0. 000	0.	0. 000	0.
GRB	113	1. 044	264.	0. 907	264.	0. 000	0.	0. 000	0.
GRB	114	1. 014	264.	0. 956	264.	0. 000	0.	0. 000	0.
GRB	115	0. 984	264.	0. 937	264.	0. 000	0.	0. 000	0.
GRB	116	1. 056	264.	0. 967	264.	0. 000	0.	0. 000	0.

Recent Q. C. counts

Detector	QC	Date	Gross Counts	Min.	Q. C.		Control limits	
					Value	Sigma		
LBG	1	SF	265. 686	27155.	9. 81	0. 937	0. 006	0. 916 - 0. 972
LBG	2	SF	265. 686	28141.	10. 12	1. 015	0. 006	0. 990 - 1. 051
LBG	3	SF	265. 686	21008.	10. 12	1. 074	0. 007	1. 046 - 1. 110
LBG	4	SF	265. 686	21814.	10. 12	1. 020	0. 007	0. 978 - 1. 039
LBG	9	SF	265. 686	30375.	10. 12	0. 950	0. 005	0. 924 - 0. 981
LBG	10	SF	265. 686	28083.	10. 12	1. 035	0. 006	0. 999 - 1. 061
LBG	11	SF	265. 686	25008.	10. 12	0. 995	0. 006	0. 968 - 1. 028
LBG	12	SF	265. 686	25233.	10. 12	0. 983	0. 006	0. 958 - 1. 017
LBG	13	SF	265. 686	23796.	10. 12	1. 046	0. 007	1. 027 - 1. 090
LBG	14	SF	265. 686	20110.	10. 12	1. 080	0. 008	1. 054 - 1. 119
LBG	15	SF	265. 686	23778.	10. 12	1. 037	0. 007	1. 007 - 1. 070
LBG	16	SF	265. 686	25003.	10. 12	0. 999	0. 006	0. 950 - 1. 068
LSC	5	Ni LSC	265. 614	2897.	200. 00	14. 485	0. 269	-8. 000 - 28. 866
LSC	4	Rn LSC	267. 038	298.	100. 00	2. 980	0. 173	1. 902 - 4. 275

Gross Counter Q. C. Status

05:30:52 19-SEP-91

THU

Status at this time

Detector	SF	GMT	BK	GMT	BK4.75	GMT	BK6.49
LBG	1	0. 945	261.	0. 537	258.	0. 968	185.
LBG	2	1. 018	261.	0. 582	258.	0. 672	185.
LBG	3	1. 075	261.	0. 453	258.	0. 571	185.
LBG	4	1. 008	261.	0. 800	258.	0. 782	185.
LBG	5	0. 893NG257.		0. 551	258.	0. 854	185.
LBG	6	0. 943NG257.		0. 608	258.	0. 770	185.
LBG	9	0. 953	261.	0. 504	258.	0. 574	185.
LBG	10	1. 029	261.	0. 589	258.	0. 689	185.
LBG	11	0. 998	261.	0. 507	258.	0. 599	185.
LBG	12	0. 989	261.	0. 588	258.	0. 692	185.
LBG	13	1. 058	261.	0. 503	258.	0. 822	185.
LBG	14	1. 084	261.	0. 596	258.	0. 736	185.
LBG	15	1. 038	261.	0. 634	258.	0. 746	185.
LBG	16	1. 007	261.	0. 494	260.	0. 605	185.
GAW	17	3. 209	261.	0. 041	261.	0. 000	0.
MEW	19	0. 986	261.	15. 343	261.	0. 666	123.
GAW	21	3. 348	261.	0. 088	261.	0. 000	0.
2PI	22	2. 147	261.	0. 215	261.	0. 000	0.
GAW	23	3. 208	90.	0. 021	90.	0. 000	0.
GAW	24	2. 739	261.	0. 074	261.	0. 000	0.
2PI	25	2. 083	118.	0. 105	118.	0. 000	0.
2PI	26	2. 326	118.	0. 233	113.	0. 000	0.
LSC	4	0. 000	0.	0. 000	0.	0. 000	0.
LSC	5	0. 000	0.	0. 000	0.	0. 000	0.
VLB	1	1. 100	190.	0. 289	190.	0. 000	0.
VLB	2	1. 130	190.	0. 246	190.	0. 000	0.
VLB	3	1. 105FC190.		0. 236	190.	0. 000	0.
VLB	4	1. 109	190.	0. 291	190.	0. 000	0.
VLB	5	1. 057	190.	0. 219	190.	0. 000	0.
VLB	6	1. 068	190.	0. 246	190.	0. 000	0.
VLB	7	1. 091	190.	0. 196	190.	0. 000	0.
VLB	8	1. 213	190.	0. 251	190.	0. 000	0.
GAW	101	1. 145	261.	0. 076NG261.		0. 000	0.
GAW	102	1. 114	261.	0. 072	261.	0. 000	0.
GAW	103	1. 071	261.	0. 074	261.	0. 000	0.
GAW	104	1. 029	261.	0. 075	261.	0. 000	0.
GAW	105	1. 010	261.	0. 148	261.	0. 000	0.
GAW	106	1. 044	261.	0. 127NG261.		0. 000	0.
GAW	107	1. 080	261.	0. 087	261.	0. 000	0.
GAW	108	1. 083	261.	0. 118	261.	0. 000	0.
GAW	109	1. 068	261.	0. 065	261.	0. 000	0.
GAW	110	1. 019	261.	0. 066	261.	0. 000	0.
GAW	111	1. 089	261.	0. 135	261.	0. 000	0.
GAW	112	1. 083	261.	0. 085	261.	0. 000	0.
GAW	113	1. 077	261.	0. 134	261.	0. 000	0.
GAW	114	1. 029	261.	0. 078	261.	0. 000	0.
GAW	115	1. 045	261.	0. 114	261.	0. 000	0.
GAW	116	1. 000	261.	0. 093	261.	0. 000	0.
GRB	101	0. 986	261.	0. 943	261.	0. 000	0.
GRB	102	0. 997	261.	1. 328	261.	0. 000	0.
GRB	103	0. 978	261.	1. 913	261.	0. 000	0.
GRB	104	0. 971	261.	1. 002	261.	0. 000	0.
GRB	105	1. 006	261.	1. 256	261.	0. 000	0.
GRB	106	1. 024	261.	1. 239	261.	0. 000	0.

GRB	107	0. 982	261.	0. 954	261.	0. 000	0.	0. 000	0.
GRB	108	0. 996	261.	1. 385	261.	0. 000	0.	0. 000	0.
GRB	109	1. 001	261.	0. 950	261.	0. 000	0.	0. 000	0.
GRB	110	1. 000	261.	1. 720	261.	0. 000	0.	0. 000	0.
GRB	111	0. 989	261.	1. 010NG	261.	0. 000	0.	0. 000	0.
GRB	112	0. 972	261.	1. 182	261.	0. 000	0.	0. 000	0.
GRB	113	1. 045	261.	0. 906	261.	0. 000	0.	0. 000	0.
GRB	114	1. 017	261.	0. 948	261.	0. 000	0.	0. 000	0.
GRB	115	0. 980	261.	0. 949	261.	0. 000	0.	0. 000	0.
GRB	116	1. 049	261.	0. 979	261.	0. 000	0.	0. 000	0.

Recent Q. C. counts

Detector	QC	Date	Gross Counts	Min.	Q. C. Value	Sigma	Control limits	
MEW	19	BK	261. 269	7314.	475. 50	15. 382	0. 180	14. 283 - 16. 392
GAW	17	BK	261. 269	19.	476. 20	0. 040	0. 009	0. 008 - 0. 073
GAW	21	BK	261. 269	40.	476. 20	0. 084	0. 013	0. 010 - 0. 176
2PI	22	BK	261. 269	111.	476. 20	0. 233	0. 022	0. 144 - 0. 290
GRB	101	BK	261. 269	46.	476. 20	0. 097	0. 014	0. 034 - 0. 104
GAW	101	BK	261. 267	441.	519. 21	0. 849	0. 040	0. 745 - 1. 167
GRB	102	BK	261. 267	70.	519. 21	0. 135	0. 016	0. 034 - 0. 119 FAIL
GAW	102	BK	261. 267	675.	519. 21	1. 300	0. 050	1. 214 - 1. 459
GRB	103	BK	261. 267	39.	519. 21	0. 075	0. 012	0. 019 - 0. 132
GAW	103	BK	261. 267	956.	519. 21	1. 841	0. 060	1. 830 - 2. 021
GRB	104	BK	261. 267	45.	519. 21	0. 087	0. 013	0. 029 - 0. 112
GAW	104	BK	261. 267	542.	519. 21	1. 044	0. 045	0. 907 - 1. 097
GRB	109	BK	261. 267	29.	519. 21	0. 056	0. 010	0. 051 - 0. 101
GAW	109	BK	261. 267	491.	519. 37	0. 945	0. 043	0. 824 - 1. 077
GRB	110	BK	261. 267	45.	519. 37	0. 087	0. 013	0. 013 - 0. 113
GAW	110	BK	261. 267	891.	519. 37	1. 716	0. 057	1. 498 - 1. 944
GRB	111	BK	261. 267	36.	519. 37	0. 069	0. 012	0. 033 - 0. 102
GAW	111	BK	261. 267	490.	519. 37	0. 943	0. 043	0. 974 - 1. 044 FAIL
GRB	112	BK	261. 267	87.	519. 37	0. 168	0. 018	0. 076 - 0. 187
GAW	112	BK	261. 267	592.	519. 37	1. 140	0. 047	0. 986 - 1. 380
GRB	113	BK	261. 267	41.	519. 37	0. 079	0. 012	0. 032 - 0. 135
GAW	113	BK	261. 267	477.	519. 42	0. 918	0. 042	0. 778 - 1. 031
GRB	114	BK	261. 267	82.	519. 42	0. 158	0. 017	0. 056 - 0. 202
GAW	114	BK	261. 267	528.	519. 42	1. 017	0. 044	0. 865 - 1. 018
GRB	115	BK	261. 267	52.	519. 42	0. 100	0. 014	0. 028 - 0. 124
GAW	115	BK	261. 267	444.	519. 42	0. 855	0. 041	0. 852 - 1. 071
GRB	116	BK	261. 267	69.	519. 42	0. 133	0. 016	0. 073 - 0. 149
GAW	116	BK	261. 267	483.	519. 42	0. 930	0. 042	0. 807 - 1. 159
GRB	105	BK	261. 267	44.	519. 42	0. 085	0. 013	0. 045 - 0. 140
GAW	105	BK	261. 267	651.	519. 36	1. 253	0. 049	1. 050 - 1. 477
GRB	106	BK	261. 267	77.	519. 36	0. 148	0. 017	0. 069 - 0. 243
GAW	106	BK	261. 267	587.	519. 36	1. 130	0. 047	1. 019 - 1. 492
GRB	107	BK	261. 267	202.	519. 36	0. 389	0. 027	0. 047 - 0. 192 FAIL
GAW	107	BK	261. 267	498.	519. 36	0. 959	0. 043	0. 837 - 1. 063
GRB	108	BK	261. 267	48.	519. 36	0. 092	0. 013	0. 022 - 0. 148
GAW	108	BK	261. 267	618.	519. 36	1. 190	0. 048	0. 903 - 1. 974
LBG	1	SF	261. 638	50817.	18. 72	0. 956	0. 004	0. 915 - 0. 972
LBG	2	SF	261. 638	51929.	18. 72	1. 017	0. 004	0. 985 - 1. 048
LBG	3	SF	261. 638	38606.	18. 72	1. 081	0. 006	1. 024 - 1. 118
LBG	4	SF	261. 638	40799.	18. 72	1. 009	0. 005	0. 976 - 1. 037
LBG	9	SF	261. 638	56159.	18. 72	0. 950	0. 004	0. 925 - 0. 982
LBG	10	SF	261. 638	52081.	18. 72	1. 032	0. 005	0. 998 - 1. 060
LBG	11	SF	261. 638	46327.	18. 72	0. 993	0. 005	0. 967 - 1. 027
LBG	12	SF	261. 638	46191.	18. 72	0. 993	0. 005	0. 959 - 1. 018
LBG	13	SF	261. 638	43619.	18. 72	1. 055	0. 005	1. 026 - 1. 090
LBG	14	SF	261. 638	36855.	18. 72	1. 090	0. 006	1. 052 - 1. 117

LBG	15	SF	261.638	43977.	18.72	1.037	0.005	1.001	-	1.074
LBG	16	SF	261.638	47466.	18.72	0.973	0.004	0.970	-	1.057
MEW	19	SF	261.638	897798.	18.72	0.986	0.001	0.957	-	1.016
GRB	109	SF	261.637	13257.	10.00	1.006	0.009	0.965	-	1.033
GAW	109	SF	261.637	7135.	10.00	1.074	0.013	1.032	-	1.105
GRB	110	SF	261.637	14631.	10.00	0.999	0.008	0.967	-	1.036
GAW	110	SF	261.637	10870.	10.00	1.015	0.010	0.989	-	1.050
GRB	111	SF	261.637	14787.	10.00	1.000	0.008	0.958	-	1.017
GRB	112	SF	261.637	7452.	10.00	1.095	0.013	1.057	-	1.122
GAW	112	SF	261.637	14423.	10.00	0.977	0.008	0.936	-	1.007
GRB	113	SF	261.637	6068.	10.00	1.080	0.014	1.051	-	1.116
GAW	113	SF	261.637	13012.	10.00	1.047	0.009	1.013	-	1.075
GRB	114	SF	261.637	8482.	10.00	1.078	0.012	1.044	-	1.109
GAW	114	SF	261.637	14362.	10.00	1.014	0.008	0.980	-	1.053
GRB	115	SF	261.637	10203.	10.00	1.026	0.010	0.999	-	1.060
GAW	115	SF	261.637	15474.	10.00	0.989	0.008	0.944	-	1.018
GRB	116	SF	261.637	9799.	10.00	1.068	0.011	1.010	-	1.076
GAW	116	SF	261.637	14337.	10.00	1.060	0.009	1.017	-	1.080
GRB	105	SF	261.637	11056.	10.00	1.005	0.010	0.969	-	1.028
GAW	105	SF	261.637	12932.	10.00	1.009	0.009	0.975	-	1.035
GRB	106	SF	261.637	7436.	10.00	1.011	0.012	0.978	-	1.039
GAW	106	SF	261.637	12675.	10.00	1.025	0.009	0.988	-	1.062
GRB	107	SF	261.637	7337.	10.00	1.047	0.012	1.007	-	1.079
GAW	107	SF	261.637	13811.	10.00	0.988	0.008	0.954	-	1.013
GRB	108	SF	261.637	8646.	10.00	1.105	0.012	1.019	-	1.128
GAW	108	SF	261.637	13327.	10.00	1.001	0.009	0.966	-	1.026
GRB	101	SF	261.637	8211.	10.00	1.083	0.012	1.042	-	1.123
GAW	101	SF	261.637	13484.	10.00	1.002	0.009	0.956	-	1.015
GRB	102	SF	261.637	8952.	10.00	1.154	0.012	1.111	-	1.180
GAW	102	SF	261.637	14580.	10.00	0.997	0.008	0.965	-	1.025
GRB	103	SF	261.637	6651.	10.00	1.101	0.013	1.081	-	1.149
GAW	103	SF	261.637	14862.	10.00	0.992	0.008	0.946	-	1.004
GRB	104	SF	261.637	9111.	10.00	1.066	0.011	1.023	-	1.118
GAW	104	SF	261.637	13248.	10.00	0.967	0.008	0.941	-	1.000
GAW	17	SF	261.678	10714.	10.00	1.021	0.010	0.997	-	1.064
GAW	21	SF	261.678	107399.	10.77	3.240	0.010	3.110	-	3.303
2PI	22	SF	261.678	100137.	10.77	3.400	0.011	3.240	-	3.444
GAW	24	SF	261.678	88229.	10.77	2.133	0.007	2.088	-	2.217
			261.678	107623.	10.77	2.731	0.008	2.656	-	2.821

Gross Counter Q. C. Status

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WED

Status at this time

Detector	SF	GMT	BK	GMT	BK4. 75	GMT	BK6. 49
LBG 1	0. 944	260.	0. 537	258.	0. 968	185.	0. 605 297.
LBG 2	1. 016	260.	0. 582	258.	0. 672	185.	0. 650 297.
LBG 3	1. 071	260.	0. 453	258.	0. 571	185.	0. 482 297.
LBG 4	1. 006	260.	0. 800	258.	0. 782	185.	0. 752 297.
LBG 5	0. 893NG257.		0. 551	258.	0. 854	185.	0. 578 281.
LBG 6	0. 943NG257.		0. 608	258.	0. 770	185.	0. 665 281.
LBG 9	0. 953	260.	0. 504	258.	0. 574	185.	0. 591 297.
LBG 10	1. 029	260.	0. 589	258.	0. 689	185.	0. 677 297.
LBG 11	0. 997	260.	0. 507	258.	0. 599	185.	0. 572 297.
LBG 12	0. 989	260.	0. 588	258.	0. 692	185.	0. 601 297.
LBG 13	1. 058	260.	0. 503	258.	0. 822	185.	0. 574 297.
LBG 14	1. 085	260.	0. 596	258.	0. 736	185.	0. 633 297.
LBG 15	1. 038	260.	0. 634	258.	0. 746	185.	0. 677 297.
LBG 16	1. 013	260.	0. 494	260.	0. 605	185.	0. 579FC297.
GAW 17	3. 207	260.	0. 041	260.	0. 000	0.	0. 000 0.
MEW 19	0. 987	260.	15. 338	260.	0. 666	123.	0. 777 123.
GAW 21	3. 342	260.	0. 093	260.	0. 000	0.	0. 000 0.
2PI 22	2. 152	260.	0. 217	260.	0. 000	0.	0. 000 0.
GAW 23	3. 208	90.	0. 021	90.	0. 000	0.	0. 000 0.
GAW 24	2. 739	260.	0. 069	260.	0. 000	0.	0. 000 0.
2PI 25	2. 083	118.	0. 105	118.	0. 000	0.	0. 000 0.
2PI 26	2. 326	118.	0. 233	113.	0. 000	0.	0. 000 0.
LSC 4	0. 000	0.	0. 000	0.	0. 000	0.	0. 000 0.
LSC 5	0. 000	0.	0. 000	0.	0. 000	0.	0. 000 0.
VLB 1	1. 100	190.	0. 289	190.	0. 000	0.	0. 000 0.
VLB 2	1. 130	190.	0. 246	190.	0. 000	0.	0. 000 0.
VLB 3	1. 105FC190.		0. 236	190.	0. 000	0.	0. 000 0.
VLB 4	1. 109	190.	0. 291	190.	0. 000	0.	0. 000 0.
VLB 5	1. 057	190.	0. 219	190.	0. 000	0.	0. 000 0.
VLB 6	1. 068	190.	0. 246	190.	0. 000	0.	0. 000 0.
VLB 7	1. 091	190.	0. 196	190.	0. 000	0.	0. 000 0.
VLB 8	1. 213	190.	0. 251	190.	0. 000	0.	0. 000 0.
GAW 101	1. 146	260.	0. 077	257.	0. 000	0.	0. 000 0.
GAW 102	1. 115	260.	0. 076	257.	0. 000	0.	0. 000 0.
GAW 103	1. 070	260.	0. 071	257.	0. 000	0.	0. 000 0.
GAW 104	1. 031	260.	0. 076	257.	0. 000	0.	0. 000 0.
GAW 105	1. 008	260.	0. 156	257.	0. 000	0.	0. 000 0.
GAW 106	1. 043	260.	0. 119NG257.		0. 000	0.	0. 000 0.
GAW 107	1. 073	260.	0. 085	257.	0. 000	0.	0. 000 0.
GAW 108	1. 083	260.	0. 116	257.	0. 000	0.	0. 000 0.
GAW 109	1. 069	260.	0. 063	257.	0. 000	0.	0. 000 0.
GAW 110	1. 019	260.	0. 068	257.	0. 000	0.	0. 000 0.
GAW 111	1. 089	260.	0. 132	257.	0. 000	0.	0. 000 0.
GAW 112	1. 083	260.	0. 084	257.	0. 000	0.	0. 000 0.
GAW 113	1. 076	260.	0. 129	257.	0. 000	0.	0. 000 0.
GAW 114	1. 029	260.	0. 076	257.	0. 000	0.	0. 000 0.
GAW 115	1. 043	260.	0. 111	257.	0. 000	0.	0. 000 0.
GAW 116	0. 998	260.	0. 092	257.	0. 000	0.	0. 000 0.
GRB 101	0. 985	260.	0. 956	257.	0. 000	0.	0. 000 0.
GRB 102	0. 995	260.	1. 336	257.	0. 000	0.	0. 000 0.
GRB 103	0. 975	260.	1. 926	257.	0. 000	0.	0. 000 0.
GRB 104	0. 971	260.	1. 002	257.	0. 000	0.	0. 000 0.
GRB 105	1. 005	260.	1. 264	257.	0. 000	0.	0. 000 0.
GRB 106	1. 025	260.	1. 254	257.	0. 000	0.	0. 000 0.

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GRB	107	0. 983	260.	0. 950	257.	0. 000	0.	0. 000	0.
GRB	108	0. 996	260.	1. 438	257.	0. 000	0.	0. 000	0.
GRB	109	0. 999	260.	0. 950	257.	0. 000	0.	0. 000	0.
GRB	110	1. 001	260.	1. 721	257.	0. 000	0.	0. 000	0.
GRB	111	0. 987	260.	1. 009	257.	0. 000	0.	0. 000	0.
GRB	112	0. 972	260.	1. 183	257.	0. 000	0.	0. 000	0.
GRB	113	1. 044	260.	0. 904	257.	0. 000	0.	0. 000	0.
GRB	114	1. 016	260.	0. 942	257.	0. 000	0.	0. 000	0.
GRB	115	0. 981	260.	0. 962	257.	0. 000	0.	0. 000	0.
GRB	116	1. 049	260.	0. 983	257.	0. 000	0.	0. 000	0.

Recent Q. C. counts

Detector	QC	Date	Gross	Q. C.			Control limits	
			Counts	Min.	Value	Sigma		
LBG	16	BK	260. 068	430.	796. 70	0. 540	0. 026	0. 413 - 0. 562
MEW	19	BK	260. 068	12432.	796. 70	15. 604	0. 140	14. 294 - 16. 327
GAW	17	BK	260. 060	34.	808. 30	0. 042	0. 007	0. 005 - 0. 080
GAW	21	BK	260. 060	48.	808. 30	0. 059	0. 009	0. 009 - 0. 200
ZPI	22	BK	260. 060	192.	808. 30	0. 238	0. 017	0. 139 - 0. 283
GAW	24	BK	260. 060	64.	808. 30	0. 079	0. 010	0. 028 - 0. 103
LBG	1	SF	260. 684	26777.	9. 72	0. 942	0. 006	0. 916 - 0. 973
LBG	2	SF	260. 684	27215.	9. 72	1. 008	0. 006	0. 980 - 1. 051
LBG	3	SF	260. 684	20580.	9. 72	1. 053	0. 007	1. 026 - 1. 117
LBG	4	SF	260. 684	21124.	9. 72	1. 012	0. 007	0. 974 - 1. 034
LBG	9	SF	260. 684	29199.	9. 72	0. 949	0. 006	0. 925 - 0. 983
LBG	10	SF	260. 684	27063.	9. 72	1. 032	0. 006	0. 998 - 1. 060
LBG	11	SF	260. 684	23894.	9. 72	1. 000	0. 006	0. 967 - 1. 026
LBG	12	SF	260. 684	24325.	9. 72	0. 979	0. 006	0. 959 - 1. 018
LBG	13	SF	260. 684	22699.	9. 72	1. 053	0. 007	1. 026 - 1. 089
LBG	14	SF	260. 684	19136.	9. 72	1. 090	0. 008	1. 051 - 1. 116
LBG	15	SF	260. 684	22921.	9. 72	1. 033	0. 007	0. 998 - 1. 075
LBG	16	SF	260. 684	23197.	9. 72	1. 034	0. 007	0. 976 - 1. 046
MEW	19	SF	260. 684	467140.	9. 72	0. 984	0. 001	0. 957 - 1. 016
GAW	17	SF	260. 684	100003.	9. 94	3. 212	0. 010	3. 104 - 3. 303
GAW	21	SF	260. 684	92883.	9. 94	3. 383	0. 011	3. 241 - 3. 442
ZPI	22	SF	260. 684	80900.	9. 94	2. 147	0. 008	2. 091 - 2. 220
GAW	24	SF	260. 684	99198.	9. 94	2. 735	0. 009	2. 657 - 2. 821
GRB	101	SF	260. 688	13680.	10. 00	0. 988	0. 008	0. 955 - 1. 014
GAW	101	SF	260. 688	8991.	10. 00	1. 149	0. 012	1. 097 - 1. 187
GRB	102	SF	260. 688	14452.	10. 00	1. 006	0. 008	0. 963 - 1. 023
GAW	102	SF	260. 688	6690.	10. 00	1. 094	0. 013	1. 085 - 1. 153
GRB	103	SF	260. 688	15246.	10. 00	0. 967	0. 008	0. 946 - 1. 004
GAW	103	SF	260. 688	8827.	10. 00	1. 100	0. 012	1. 030 - 1. 101
GRB	104	SF	260. 688	13173.	10. 00	0. 972	0. 008	0. 943 - 1. 001
GAW	104	SF	260. 688	10738.	10. 00	1. 019	0. 010	0. 996 - 1. 074
GRB	105	SF	260. 688	12980.	10. 00	1. 005	0. 009	0. 975 - 1. 036
GAW	105	SF	260. 688	7373.	10. 00	1. 020	0. 012	0. 967 - 1. 041
GRB	106	SF	260. 688	12475.	10. 00	1. 042	0. 009	0. 984 - 1. 057
GAW	106	SF	260. 688	7327.	10. 00	1. 049	0. 012	1. 008 - 1. 079
GRB	107	SF	260. 688	13872.	10. 00	0. 983	0. 008	0. 953 - 1. 012
GAW	107	SF	260. 688	8684.	10. 00	1. 100	0. 012	1. 022 - 1. 117
GRB	108	SF	260. 688	13557.	10. 00	0. 984	0. 008	0. 966 - 1. 025
GAW	108	SF	260. 688	8057.	10. 00	1. 104	0. 012	1. 043 - 1. 114
GRB	109	SF	260. 688	13378.	10. 00	0. 997	0. 009	0. 962 - 1. 040
GAW	109	SF	260. 688	7326.	10. 00	1. 046	0. 012	1. 038 - 1. 102
GRB	110	SF	260. 688	14848.	10. 00	0. 984	0. 008	0. 973 - 1. 033
GAW	110	SF	260. 688	10849.	10. 00	1. 017	0. 010	0. 985 - 1. 050
GRB	111	SF	260. 688	15039.	10. 00	0. 983	0. 008	0. 958 - 1. 017
GAW	111	SF	260. 688	7588.	10. 00	1. 076	0. 012	1. 060 - 1. 125
GRB	112	SF	260. 688	14642.	10. 00	0. 962	0. 008	0. 937 - 1. 007
GAW	112	SF	260. 688	6064.	10. 00	1. 080	0. 014	1. 037 - 1. 123

GRB	113	SF	260.688	12910.	10.00	1.056	0.009	1.012	-	1.074
GAW	113	SF	260.688	8419.	10.00	1.086	0.012	1.040	-	1.104
GRB	114	SF	260.688	13981.	10.00	1.041	0.009	0.982	-	1.043
GAW	114	SF	260.688	10133.	10.00	1.033	0.010	0.996	-	1.057
GRB	115	SF	260.688	15641.	10.00	0.979	0.008	0.944	-	1.018
GAW	115	SF	260.688	9905.	10.00	1.056	0.011	1.011	-	1.073
GRB	116	SF	260.688	14512.	10.00	1.047	0.009	1.017	-	1.080
GAW	116	SF	260.688	11009.	10.00	1.009	0.010	0.968	-	1.028

Gross Counter Q. C. Status

05:44:10 16-SEP-91

MON

T 9/17

Status at this time

Detector	SF	GMT	BK	GMT	BK4. 75	GMT	BK6. 49
LBG	1	0. 945	257.	0. 541	250.	0. 968	185.
LBG	2	1. 013	257.	0. 580	250.	0. 672	185.
LBG	3	1. 066	257.	0. 450	254.	0. 571	185.
LBG	4	1. 003	257.	0. 787	250.	0. 782	185.
LBG	5	0. 893NG	257.	0. 551	257.	0. 854	185.
LBG	6	0. 943NG	257.	0. 605	257.	0. 770	185.
LBG	9	0. 954	257.	0. 507	250.	0. 574	185.
LBG	10	1. 030	257.	0. 580	250.	0. 689	185.
LBG	11	0. 997	257.	0. 500	250.	0. 599	185.
LBG	12	0. 988	257.	0. 589	250.	0. 692	185.
LBG	13	1. 056	257.	0. 506	250.	0. 822	185.
LBG	14	1. 083	257.	0. 594	250.	0. 736	185.
LBG	15	1. 035	257.	0. 629	250.	0. 746	185.
LBG	16	1. 012NG	257.	0. 488NG	257.	0. 605	185.
GAW	17	3. 201	257.	0. 043	257.	0. 000	0.
MEW	19	0. 987	257.	15. 260	257.	0. 666	123.
GAW	21	3. 341	257.	0. 111	257.	0. 000	0.
2PI	22	2. 157	257.	0. 221	257.	0. 000	0.
GAW	23	3. 208	90.	0. 021	90.	0. 000	0.
GAW	24	2. 738	257.	0. 063	257.	0. 000	0.
2PI	25	2. 083	118.	0. 105	118.	0. 000	0.
2PI	26	2. 326	118.	0. 233	113.	0. 000	0.
LSC	4	0. 000	0.	0. 000	0.	0. 000	0.
LSC	5	0. 000	0.	0. 000	0.	0. 000	0.
VLB	1	1. 100	190.	0. 289	190.	0. 000	0.
VLB	2	1. 130	190.	0. 246	190.	0. 000	0.
VLB	3	1. 105FC	190.	0. 236	190.	0. 000	0.
VLB	4	1. 109	190.	0. 291	190.	0. 000	0.
VLB	5	1. 057	190.	0. 219	190.	0. 000	0.
VLB	6	1. 068	190.	0. 246	190.	0. 000	0.
VLB	7	1. 091	190.	0. 196	190.	0. 000	0.
VLB	8	1. 213	190.	0. 251	190.	0. 000	0.
GAW	101	1. 144	257.	0. 073NG	257.	0. 000	0.
GAW	102	1. 118	257.	0. 076	257.	0. 000	0.
GAW	103	1. 061	257.	0. 069	257.	0. 000	0.
GAW	104	1. 036	257.	0. 075NG	257.	0. 000	0.
GAW	105	1. 001	257.	0. 157	257.	0. 000	0.
GAW	106	1. 041	257.	0. 126NG	257.	0. 000	0.
GAW	107	1. 067	257.	0. 085	257.	0. 000	0.
GAW	108	1. 076	257.	0. 121	257.	0. 000	0.
GAW	109	1. 070	257.	0. 063	257.	0. 000	0.
GAW	110	1. 019	257.	0. 070	257.	0. 000	0.
GAW	111	1. 090	257.	0. 135	257.	0. 000	0.
GAW	112	1. 080	257.	0. 083	257.	0. 000	0.
GAW	113	1. 072	257.	0. 128	257.	0. 000	0.
GAW	114	1. 026	257.	0. 078	257.	0. 000	0.
GAW	115	1. 040	257.	0. 111	257.	0. 000	0.
GAW	116	0. 997	257.	0. 091	257.	0. 000	0.
GRB	101	0. 985	257.	0. 944NG	257.	0. 000	0.
GRB	102	0. 994	257.	1. 335	257.	0. 000	0.
GRB	103	0. 973	257.	1. 936NG	257.	0. 000	0.
GRB	104	0. 973	257.	1. 007NG	257.	0. 000	0.
GRB	105	1. 004	257.	1. 268	257.	0. 000	0.
GRB	106	1. 020	257.	1. 276	257.	0. 000	0.

GRB	107	0. 981	257.	0. 948	257.	0. 000	0.	0. 000	0.
GRB	108	0. 994	257.	1. 501	257.	0. 000	0.	0. 000	0.
GRB	109	0. 997	257.	0. 954NG	257.	0. 000	0.	0. 000	0.
GRB	110	1. 003	257.	1. 741	257.	0. 000	0.	0. 000	0.
GRB	111	0. 988	257.	1. 009	257.	0. 000	0.	0. 000	0.
GRB	112	0. 971	257.	1. 178	257.	0. 000	0.	0. 000	0.
GRB	113	1. 041	257.	0. 906	257.	0. 000	0.	0. 000	0.
GRB	114	1. 009	257.	0. 941	257.	0. 000	0.	0. 000	0.
GRB	115	0. 981	257.	0. 967	257.	0. 000	0.	0. 000	0.
GRB	116	1. 051	257.	0. 992	257.	0. 000	0.	0. 000	0.

Recent Q. C. counts

Detector	QC	Date	Gross		Q. C.		Control limits	
			Counts	Min.	Value	Sigma		
MEW	19	BK	254. 650	39395.	1260. 50	31. 253	0. 157	14. 487 - 15. 762 FAIL
GAW	17	BK	255. 274	21.	476. 90	0. 044	0. 010	0. 017 - 0. 077
GAW	21	BK	255. 217	47.	551. 40	0. 085	0. 012	0. 016 - 0. 182
2PI	22	BK	255. 217	126.	551. 40	0. 229	0. 020	0. 162 - 0. 278
GAW	24	BK	255. 217	31.	551. 40	0. 056	0. 010	0. 016 - 0. 082
LBG	1	SF	255. 635	30646.	11. 13	0. 942	0. 005	0. 918 - 0. 974
LBG	2	SF	255. 635	30854.	11. 13	1. 018	0. 006	0. 976 - 1. 042
LBG	3	SF	255. 635	23028.	11. 13	1. 077	0. 007	1. 021 - 1. 085
LBG	4	SF	255. 635	24426.	11. 13	1. 002	0. 006	0. 971 - 1. 031
LBG	9	SF	255. 635	33263.	11. 13	0. 954	0. 005	0. 924 - 0. 981
LBG	10	SF	255. 635	30889.	11. 13	1. 035	0. 006	0. 998 - 1. 060
LBG	11	SF	255. 635	27156.	11. 13	1. 007	0. 006	0. 965 - 1. 024
LBG	12	SF	255. 635	27533.	11. 13	0. 990	0. 006	0. 959 - 1. 018
LBG	13	SF	255. 635	25681.	11. 13	1. 066	0. 007	1. 021 - 1. 084
LBG	14	SF	255. 635	22367.	11. 13	1. 068	0. 007	1. 048 - 1. 113
LBG	15	SF	255. 635	26154.	11. 13	1. 037	0. 006	0. 996 - 1. 078
MEW	19	SF	255. 635	25895.	11. 13	1. 060	0. 007	0. 971 - 1. 045 FAIL
GRB	101	BK	255. 289	410.	483. 69	0. 848	0. 042	0. 762 - 1. 160
GAW	101	BK	255. 289	36.	483. 69	0. 074	0. 012	0. 031 - 0. 120
GRB	102	BK	255. 289	658.	483. 69	1. 360	0. 053	1. 119 - 1. 492
GAW	102	BK	255. 289	34.	483. 69	0. 070	0. 012	0. 042 - 0. 132
GRB	103	BK	255. 289	935.	483. 69	1. 933	0. 063	1. 818 - 2. 090
GAW	103	BK	255. 289	40.	483. 69	0. 083	0. 013	0. 024 - 0. 120
GRB	104	BK	255. 289	475.	483. 69	0. 982	0. 045	0. 869 - 1. 108
GAW	104	BK	255. 289	39.	483. 69	0. 081	0. 013	0. 041 - 0. 093
GAW	105	BK	255. 278	658.	499. 29	1. 318	0. 051	1. 061 - 1. 513
GRB	105	BK	255. 278	79.	499. 29	0. 158	0. 018	0. 097 - 0. 264
GAW	106	BK	255. 278	581.	499. 29	1. 164	0. 048	0. 979 - 1. 892
GAW	106	BK	255. 278	196.	499. 29	0. 393	0. 028	0. 047 - 0. 192 FAIL
GRB	107	BK	255. 278	475.	499. 29	0. 951	0. 044	0. 887 - 1. 035
GAW	107	BK	255. 278	48.	499. 29	0. 096	0. 014	0. 032 - 0. 154
GRB	108	BK	255. 278	648.	499. 29	1. 298	0. 051	0. 926 - 2. 901
GAW	108	BK	255. 278	51.	499. 29	0. 102	0. 014	0. 064 - 0. 192
GRB	109	BK	255. 278	467.	499. 32	0. 935	0. 043	0. 819 - 1. 109
GAW	109	BK	255. 278	36.	499. 32	0. 072	0. 012	0. 009 - 0. 113
GRB	110	BK	255. 278	835.	499. 32	1. 672	0. 058	1. 482 - 1. 955
GAW	110	BK	255. 278	36.	499. 32	0. 072	0. 012	0. 027 - 0. 112
GRB	111	BK	255. 278	536.	499. 32	1. 073	0. 046	0. 937 - 1. 065 FAIL
GAW	111	BK	255. 278	51.	499. 32	0. 102	0. 014	0. 100 - 0. 166
GRB	112	BK	255. 278	553.	499. 32	1. 108	0. 047	0. 968 - 1. 401
GAW	112	BK	255. 278	36.	499. 32	0. 072	0. 012	0. 026 - 0. 131
GRB	113	BK	255. 289	439.	483. 91	0. 907	0. 043	0. 749 - 1. 049
GAW	113	BK	255. 289	74.	483. 91	0. 153	0. 018	0. 068 - 0. 197
GRB	114	BK	255. 289	457.	483. 91	0. 944	0. 044	0. 839 - 1. 065
GAW	114	BK	255. 289	37.	483. 91	0. 076	0. 013	0. 045 - 0. 109
GRB	115	BK	255. 289	489.	483. 91	1. 011	0. 046	0. 872 - 1. 084

GAW	115	BK	255. 289	58.	483. 91	0. 120	0. 016	0. 064	-	0. 152	
GRB	116	BK	255. 289	452.	483. 91	0. 934	0. 044	0. 750	-	1. 158	
GAW	116	BK	255. 289	39.	483. 91	0. 081	0. 013	0. 040	-	0. 143	
LBG	16	SF	255. 658	27008.	11. 07	1. 011	0. 006	0. 971	-	1. 045	
GRB	109	SF	255. 667	13519.	10. 00	0. 987	0. 008	0. 963	-	1. 033	
GAW	109	SF	255. 667	7199.	10. 00	1. 064	0. 013	1. 024	-	1. 110	
GRB	110	SF	255. 667	14829.	10. 00	0. 986	0. 008	0. 973	-	1. 033	
GAW	110	SF	255. 667	10885.	10. 00	1. 013	0. 010	0. 989	-	1. 050	
GRB	111	SF	255. 667	15005.	10. 00	0. 985	0. 008	0. 957	-	1. 016	
GAW	111	SF	255. 667	7442.	10. 00	1. 097	0. 013	1. 052	-	1. 123	
GRB	112	SF	255. 667	14179.	10. 00	0. 994	0. 008	0. 939	-	0. 997	
GAW	112	SF	255. 667	6050.	10. 00	1. 083	0. 014	1. 011	-	1. 120	
GRB	113	SF	255. 667	13128.	10. 00	1. 038	0. 009	1. 008	-	1. 071	
GAW	113	SF	255. 667	8432.	10. 00	1. 084	0. 012	1. 034	-	1. 098	
GRB	114	SF	255. 667	14410.	10. 00	1. 010	0. 008	0. 979	-	1. 039	
GAW	114	SF	255. 667	10077.	10. 00	1. 039	0. 010	0. 994	-	1. 056	
GRB	115	SF	255. 667	15433.	10. 00	0. 992	0. 008	0. 949	-	1. 016	
GAW	115	SF	255. 667	10202.	10. 00	1. 025	0. 010	1. 009	-	1. 072	
GRB	116	SF	255. 667	14481.	10. 00	1. 049	0. 009	1. 019	-	1. 082	
GAW	116	SF	255. 667	11159.	10. 00	0. 996	0. 009	0. 970	-	1. 030	
GAW	101	SF	255. 667	13678.	10. 00	0. 988	0. 008	0. 958	-	1. 017	
GRB	101	SF	255. 667	8928.	10. 00	1. 157	0. 012	1. 099	-	1. 180	
GRB	102	SF	255. 667	14556.	10. 00	0. 998	0. 008	0. 963	-	1. 024	
GAW	102	SF	255. 667	6605.	10. 00	1. 108	0. 014	1. 069	-	1. 157	
GRB	103	SF	255. 667	15305.	10. 00	0. 964	0. 008	0. 947	-	1. 007	
GAW	103	SF	255. 667	9021.	10. 00	1. 076	0. 011	1. 028	-	1. 092	
GRB	104	SF	255. 667	13155.	10. 00	0. 974	0. 008	0. 945	-	1. 006	
GAW	104	SF	255. 667	10499.	10. 00	1. 042	0. 010	0. 990	-	1. 075	
GAW	105	SF	255. 667	12919.	10. 00	1. 010	0. 009	0. 978	-	1. 046	
GRB	105	SF	255. 667	7250.	10. 00	1. 037	0. 012	0. 967	-	1. 031 FAIL	
GAW	106	SF	255. 667	12586.	10. 00	1. 032	0. 009	0. 985	-	1. 046	
GAW	106	SF	255. 667	7257.	10. 00	1. 059	0. 012	1. 003	-	1. 074	
GRB	107	SF	255. 667	13954.	10. 00	0. 977	0. 008	0. 950	-	1. 011	
GAW	107	SF	255. 667	8871.	10. 00	1. 077	0. 011	1. 028	-	1. 091	
GRB	108	SF	255. 667	13246.	10. 00	1. 008	0. 009	0. 963	-	1. 023	
GAW	108	SF	255. 667	8253.	10. 00	1. 077	0. 012	1. 036	-	1. 114	
GRB	21	SF	255. 711	111943.	11. 80	3. 333	0. 010	3. 232	-	3. 456	
LSC	5	H	DST	255. 324	837.	300. 00	2. 790	0. 096	2. 403	-	4. 063
LSC	4	H	DST	254. 400	434.	100. 00	4. 340	0. 208	2. 883	-	5. 368
MEW	19	BK	255. 761	2699.	171. 90	15. 701	0. 302	14. 550	-	15. 759	
MEW	19	BK	256. 290	6708.	445. 90	15. 044	0. 184	14. 389	-	16. 015	
GAW	17	BK	256. 289	10.	448. 70	0. 022	0. 007	0. 016	-	0. 077	
GAW	21	BK	256. 289	49.	448. 70	0. 109	0. 016	0. 020	-	0. 172	
2PI	22	BK	256. 289	91.	448. 70	0. 203	0. 021	0. 162	-	0. 279	
GAW	24	BK	256. 289	30.	448. 70	0. 067	0. 012	0. 019	-	0. 081	
GRB	105	BK	256. 271	621.	511. 88	1. 213	0. 049	1. 094	-	1. 459	
GAW	105	BK	256. 271	65.	511. 88	0. 127	0. 016	0. 100	-	0. 249	
GRB	106	BK	256. 271	637.	511. 88	1. 244	0. 049	1. 019	-	1. 730	
GAW	106	BK	256. 271	192.	511. 88	0. 375	0. 027	0. 093	-	0. 162 FAIL	
GRB	107	BK	256. 271	466.	511. 88	0. 910	0. 042	0. 885	-	1. 034	
GAW	107	BK	256. 271	47.	511. 88	0. 092	0. 013	0. 036	-	0. 145	
GRB	108	BK	256. 271	745.	511. 88	1. 455	0. 053	0. 850	-	2. 741	
GAW	108	BK	256. 271	56.	511. 88	0. 109	0. 015	0. 071	-	0. 171	
GRB	109	BK	256. 271	491.	511. 88	0. 959	0. 043	0. 838	-	1. 067	
GAW	109	BK	256. 271	33.	511. 88	0. 064	0. 011	0. 024	-	0. 106	
GRB	110	BK	256. 271	922.	511. 88	1. 801	0. 059	1. 579	-	1. 888	
GAW	110	BK	256. 271	29.	511. 88	0. 057	0. 011	0. 035	-	0. 108	
GRB	111	BK	256. 271	509.	511. 88	0. 994	0. 044	0. 938	-	1. 056	
GAW	111	BK	256. 271	78.	511. 88	0. 152	0. 017	0. 082	-	0. 175	
GRB	112	BK	256. 271	576.	511. 88	1. 125	0. 047	0. 965	-	1. 369	
GAW	112	BK	256. 271	41.	511. 88	0. 080	0. 013	0. 026	-	0. 128	
LBG	1	SF	256. 646	29793.	10. 73	0. 934	0. 005	0. 917	-	0. 974	

LBG	2	SF	256. 646	29728.	10. 73	1. 018	0. 006	0. 977	-	1. 043
LBG	3	SF	256. 646	21901.	10. 73	1. 092	0. 007	1. 019	-	1. 096
LBG	4	SF	256. 646	23521.	10. 73	1. 003	0. 007	0. 972	-	1. 032
LBG	9	SF	256. 646	32027.	10. 73	0. 955	0. 005	0. 925	-	0. 982
LBG	10	SF	256. 646	30043.	10. 73	1. 025	0. 006	0. 998	-	1. 060
LBG	11	SF	256. 646	26453.	10. 73	0. 996	0. 006	0. 966	-	1. 026
LBG	12	SF	256. 646	26645.	10. 73	0. 986	0. 006	0. 959	-	1. 018
LBG	13	SF	256. 646	25133.	10. 73	1. 050	0. 007	1. 023	-	1. 087
LBG	14	SF	256. 646	21109.	10. 73	1. 091	0. 008	1. 047	-	1. 112
LBG	15	SF	256. 646	25461.	10. 73	1. 026	0. 006	0. 998	-	1. 073
LBG	16	SF	256. 646	25164.	10. 73	1. 052	0. 007	0. 976	-	1. 043 FAIL
MEW	19	SF	256. 646	513278.	10. 73	0. 988	0. 001	0. 957	-	1. 016
GAW	17	SF	256. 647	125351.	12. 58	3. 243	0. 009	3. 101	-	3. 292
GAW	21	SF	256. 647	119454.	12. 58	3. 330	0. 010	3. 235	-	3. 441
ZPI	22	SF	256. 647	102396.	12. 58	2. 147	0. 007	2. 094	-	2. 224
GAW	24	SF	256. 647	124965.	12. 58	2. 748	0. 008	2. 655	-	2. 820
GRB	109	SF	256. 646	13313.	10. 00	1. 002	0. 009	0. 961	-	1. 033
GAW	109	SF	256. 646	7198.	10. 00	1. 064	0. 013	1. 025	-	1. 107
GRB	110	SF	256. 646	14416.	10. 00	1. 014	0. 008	0. 971	-	1. 031
GAW	110	SF	256. 646	10620.	10. 00	1. 039	0. 010	0. 987	-	1. 048
GRB	111	SF	256. 646	14850.	10. 00	0. 995	0. 008	0. 957	-	1. 016
GAW	111	SF	256. 646	7470.	10. 00	1. 093	0. 013	1. 054	-	1. 125
GRB	112	SF	256. 646	14551.	10. 00	0. 968	0. 008	0. 936	-	1. 005
GAW	112	SF	256. 646	6017.	10. 00	1. 089	0. 014	1. 031	-	1. 112
GRB	113	SF	256. 646	13168.	10. 00	1. 035	0. 009	1. 008	-	1. 071
GAW	113	SF	256. 646	8519.	10. 00	1. 073	0. 012	1. 034	-	1. 103
GRB	114	SF	256. 646	14392.	10. 00	1. 012	0. 008	0. 979	-	1. 040
GAW	114	SF	256. 646	10301.	10. 00	1. 016	0. 010	0. 995	-	1. 057
GRB	115	SF	256. 646	15468.	10. 00	0. 990	0. 008	0. 948	-	1. 017
GAW	115	SF	256. 646	9876.	10. 00	1. 059	0. 011	1. 009	-	1. 071
GRB	116	SF	256. 646	14342.	10. 00	1. 059	0. 009	1. 018	-	1. 071
GAW	116	SF	256. 646	10786.	10. 00	1. 030	0. 010	0. 945	-	1. 081
GRB	102	SF	256. 646	14569.	10. 00	0. 998	0. 008	0. 963	-	1. 022
GAW	102	SF	256. 646	6499.	10. 00	1. 126	0. 014	1. 081	-	1. 150
GRB	103	SF	256. 646	15037.	10. 00	0. 981	0. 008	0. 945	-	1. 005
GAW	103	SF	256. 646	9169.	10. 00	1. 059	0. 011	1. 027	-	1. 096
GRB	104	SF	256. 646	13072.	10. 00	0. 980	0. 009	0. 945	-	1. 004
GAW	104	SF	256. 646	10429.	10. 00	1. 049	0. 010	0. 992	-	1. 072
GRB	105	SF	256. 646	12942.	10. 00	1. 008	0. 009	0. 977	-	1. 045
GAW	105	SF	256. 646	7522.	10. 00	1. 000	0. 012	0. 967	-	1. 032
GRB	106	SF	256. 646	12490.	10. 00	1. 040	0. 009	0. 988	-	1. 049
GAW	106	SF	256. 646	7377.	10. 00	1. 042	0. 012	1. 009	-	1. 076
GRB	107	SF	256. 646	13844.	10. 00	0. 985	0. 008	0. 949	-	1. 010
GAW	107	SF	256. 646	8982.	10. 00	1. 063	0. 011	1. 030	-	1. 094
GRB	108	SF	256. 646	13375.	10. 00	0. 998	0. 009	0. 965	-	1. 025
GAW	108	SF	256. 646	8167.	10. 00	1. 089	0. 012	1. 036	-	1. 114
LBG	16	SF	256. 654	26845.	11. 48	1. 056	0. 006	0. 981	-	1. 042 FAIL
LSC	5	Ni LSC	256. 785	934.	100. 00	9. 340	0. 306	-10. 168	-	29. 479
GRB	109	BK	256. 751	108.	100. 00	1. 080	0. 104	0. 854	-	1. 061 FAIL
GAW	109	BK	256. 751	3.	100. 00	0. 030	0. 017	0. 027	-	0. 105
GRB	110	BK	256. 751	173.	100. 00	1. 730	0. 132	1. 586	-	1. 910
GAW	110	BK	256. 751	6.	100. 00	0. 060	0. 024	0. 032	-	0. 106
GRB	111	BK	256. 751	125.	100. 00	1. 250	0. 112	0. 960	-	1. 042 FAIL
GAW	111	BK	256. 751	15.	100. 00	0. 150	0. 039	0. 084	-	0. 184
GRB	112	BK	256. 751	122.	100. 00	1. 220	0. 110	0. 957	-	1. 368
GAW	112	BK	256. 751	11.	100. 00	0. 110	0. 033	0. 036	-	0. 112
GRB	113	BK	256. 751	95.	100. 00	0. 950	0. 097	0. 784	-	1. 033
GAW	113	BK	256. 751	10.	100. 00	0. 100	0. 032	0. 070	-	0. 193
GRB	114	BK	256. 751	92.	100. 00	0. 920	0. 096	0. 877	-	1. 008
GAW	114	BK	256. 751	11.	100. 00	0. 110	0. 033	0. 052	-	0. 105 FAIL
GRB	115	BK	256. 751	101.	100. 00	1. 010	0. 100	0. 875	-	1. 079
GAW	115	BK	256. 751	10.	100. 00	0. 100	0. 032	0. 063	-	0. 154

GRB	116	BK	256.751	105.	100.00	1.050	0.102	0.854	-	1.083
GAW	116	BK	256.751	8.	100.00	0.080	0.028	0.038	-	0.141
GRB	101	BK	256.751	98.	100.00	0.980	0.099	0.731	-	1.166
GAW	101	BK	256.751	16.	100.00	0.160	0.040	0.033	-	0.117 FAIL
GRB	102	BK	256.751	113.	100.00	1.130	0.106	1.140	-	1.460 FAIL
GAW	102	BK	256.751	5.	100.00	0.050	0.022	0.043	-	0.123
GRB	103	BK	256.751	190.	100.00	1.900	0.138	1.874	-	2.007
GAW	103	BK	256.751	6.	100.00	0.060	0.024	0.032	-	0.118
GRB	104	BK	256.751	88.	100.00	0.880	0.094	0.884	-	1.101 FAIL
GRB	105	BK	256.751	12.	100.00	0.120	0.035	0.041	-	0.097 FAIL
GAW	105	BK	256.751	135.	100.00	1.350	0.116	1.079	-	1.456
GRB	106	BK	256.751	28.	100.00	0.280	0.033	0.088	-	0.245 FAIL
GAW	106	BK	256.751	100.	100.00	1.000	0.100	1.065	-	1.611 FAIL
GRB	107	BK	256.751	47.	100.00	0.470	0.069	0.092	-	0.166 FAIL
GAW	107	BK	256.751	88.	100.00	0.880	0.094	0.867	-	1.040
GRB	108	BK	256.751	7.	100.00	0.070	0.026	0.043	-	0.143
GAW	108	BK	256.751	129.	100.00	1.290	0.114	0.839	-	2.599
GRB	101	BK	256.903	23.	100.00	0.230	0.048	0.068	-	0.171 FAIL
GAW	101	BK	256.903	395.	413.02	0.956	0.048	0.734	-	1.173
GRB	102	BK	256.903	38.	413.02	0.092	0.015	0.031	-	0.120
GAW	102	BK	256.903	538.	413.02	1.303	0.056	1.146	-	1.466
GRB	103	BK	256.903	25.	413.02	0.061	0.012	0.032	-	0.130
GAW	103	BK	256.903	803.	413.02	1.944	0.069	1.860	-	2.014
GRB	104	BK	256.903	27.	413.02	0.065	0.013	0.035	-	0.108
GAW	104	BK	256.903	418.	413.02	1.012	0.050	0.893	-	1.102
GRB	105	BK	256.903	37.	413.02	0.090	0.015	0.040	-	0.097
GAW	105	BK	256.903	496.	413.14	1.201	0.054	1.077	-	1.479
GRB	106	BK	256.903	56.	413.14	0.136	0.018	0.083	-	0.245
GAW	106	BK	256.903	517.	413.14	1.251	0.055	1.052	-	1.607
GRB	107	BK	256.903	184.	413.14	0.445	0.033	0.093	-	0.162 FAIL
GAW	107	BK	256.903	411.	413.14	0.995	0.049	0.835	-	1.056
GRB	108	BK	256.903	39.	413.14	0.094	0.015	0.037	-	0.145
GAW	108	BK	256.903	580.	413.14	1.404	0.058	0.799	-	2.467
GRB	114	BK	256.990	65.	413.14	0.157	0.020	0.065	-	0.174
GAW	114	BK	256.990	109.	100.00	1.090	0.104	0.873	-	1.009 FAIL
GRB	116	BK	256.990	10.	100.00	0.100	0.032	0.050	-	0.106
GAW	116	BK	256.990	107.	100.00	1.070	0.103	0.880	-	1.089
GRB	110	BK	256.990	9.	100.00	0.090	0.030	0.036	-	0.140
GAW	110	BK	256.990	252.	100.00	2.520	0.159	1.582	-	1.905 FAIL
GRB	112	BK	256.990	52.	100.00	0.520	0.072	0.031	-	0.102 FAIL
GAW	112	BK	256.990	155.	100.00	1.550	0.124	0.957	-	1.381 FAIL
LBG	5	BK	257.285	11.	100.00	0.110	0.033	0.028	-	0.129
LBG	6	BK	257.285	226.	450.40	0.502	0.033	0.430	-	0.682
LBG	16	BK	257.271	259.	450.40	0.575	0.036	0.470	-	0.738
MEW	19	BK	257.195	232.	468.40	0.495	0.033	0.414	-	0.573
GAW	17	BK	257.195	8793.	564.20	15.585	0.166	14.405	-	15.967
GAW	21	BK	257.195	18.	575.70	0.031	0.007	0.007	-	0.081
2PI	22	BK	257.195	55.	575.70	0.096	0.013	0.023	-	0.199
GAW	24	BK	257.195	129.	575.70	0.224	0.020	0.157	-	0.280
LBG	1	SF	257.640	35564.	12.96	0.946	0.005	0.018	-	0.100
LBG	2	SF	257.640	35835.	12.96	1.021	0.005	0.917	-	0.973
LBG	3	SF	257.640	26907.	12.96	1.074	0.007	0.980	-	1.044
LBG	4	SF	257.640	28234.	12.96	1.010	0.006	1.015	-	1.112
LBG	5	SF	257.640	32368.	12.96	0.974	0.005	0.971	-	1.031
LBG	6	SF	257.640	29084.	12.96	0.993	0.006	0.852	-	0.934 FAIL
LBG	9	SF	257.640	38774.	12.96	0.953	0.005	0.915	-	0.971 FAIL
LBG	10	SF	257.640	36374.	12.96	1.024	0.005	0.925	-	0.982
LBG	11	SF	257.640	32013.	12.96	0.995	0.006	0.999	-	1.061
LBG	12	SF	257.640	32210.	12.96	0.986	0.005	0.967	-	1.027
LBG	13	SF	257.640	30121.	12.96	1.059	0.006	0.959	-	1.019
LBG	14	SF	257.640	25581.	12.96	1.088	0.007	1.023	-	1.087
								1.050	-	1.115

GAW	104	SF	257. 639	10658.	10. 00	1. 027	0. 010	0. 997	-	1. 075
GRB	105	SF	257. 639	13158.	10. 00	0. 991	0. 009	0. 978	-	1. 039
GAW	105	SF	257. 639	7359.	10. 00	1. 022	0. 012	0. 967	-	1. 026
GRB	106	SF	257. 639	12834.	10. 00	1. 012	0. 009	0. 986	-	1. 056
GAW	106	SF	257. 639	7438.	10. 00	1. 033	0. 012	1. 008	-	1. 074
GRB	107	SF	257. 639	13880.	10. 00	0. 983	0. 008	0. 951	-	1. 012
GAW	107	SF	257. 639	8741.	10. 00	1. 093	0. 012	1. 032	-	1. 096
GRB	108	SF	257. 639	13500.	10. 00	0. 989	0. 009	0. 966	-	1. 026
GAW	108	SF	257. 639	8195.	10. 00	1. 085	0. 012	1. 036	-	1. 115
GRB	101	BK	257. 251	25.	18. 00	1. 389	0. 278	0. 741	-	1. 151 FAIL
GAW	101	BK	257. 251	5.	18. 00	0. 278	0. 124	0. 033	-	0. 117 FAIL
GRB	102	BK	257. 251	29.	18. 00	1. 611	0. 299	1. 151	-	1. 448 FAIL
GAW	102	BK	257. 251	1.	18. 00	0. 056	0. 056	0. 026	-	0. 131
GRB	103	BK	257. 251	16.	18. 00	0. 889	0. 222	1. 867	-	2. 014 FAIL
GAW	103	BK	257. 251	2.	18. 00	0. 111	0. 079	0. 034	-	0. 108 FAIL
GRB	104	BK	257. 251	25.	18. 00	1. 389	0. 278	0. 902	-	1. 102 FAIL
GAW	104	BK	257. 251	2.	18. 00	0. 111	0. 079	0. 036	-	0. 106 FAIL
GRB	105	BK	257. 253	672.	546. 20	1. 230	0. 047	1. 059	-	1. 472
GAW	105	BK	257. 253	73.	546. 20	0. 134	0. 016	0. 075	-	0. 244
GRB	106	BK	257. 253	626.	546. 20	1. 146	0. 046	1. 053	-	1. 564
GAW	106	BK	257. 253	187.	546. 20	0. 342	0. 025	0. 092	-	0. 166 FAIL
GRB	107	BK	257. 253	521.	546. 20	0. 954	0. 042	0. 832	-	1. 071
GAW	107	BK	257. 253	26.	546. 20	0. 048	0. 009	0. 037	-	0. 146
GRB	108	BK	257. 253	709.	546. 20	1. 298	0. 049	0. 858	-	2. 272
GAW	108	BK	257. 253	51.	546. 20	0. 093	0. 013	0. 058	-	0. 190
GRB	109	BK	257. 253	460.	546. 23	0. 842	0. 039	0. 847	-	1. 067 FAIL
GAW	109	BK	257. 253	39.	546. 23	0. 071	0. 011	0. 012	-	0. 111
GRB	110	BK	257. 253	908.	546. 23	1. 662	0. 055	1. 589	-	1. 914
GAW	110	BK	257. 253	46.	546. 23	0. 084	0. 012	0. 032	-	0. 104
GRB	111	BK	257. 253	561.	546. 23	1. 027	0. 043	0. 975	-	1. 035
GAW	111	BK	257. 253	62.	546. 23	0. 114	0. 014	0. 087	-	0. 185
GRB	112	BK	257. 253	644.	546. 23	1. 179	0. 046	0. 947	-	1. 395
GAW	112	BK	257. 253	38.	546. 23	0. 070	0. 011	0. 032	-	0. 135
GRB	113	BK	257. 253	494.	546. 28	0. 904	0. 041	0. 781	-	1. 039
GAW	113	BK	257. 253	49.	546. 28	0. 090	0. 013	0. 062	-	0. 198
GRB	114	BK	257. 253	494.	546. 28	0. 904	0. 041	0. 873	-	1. 013
GAW	114	BK	257. 253	28.	546. 28	0. 051	0. 010	0. 046	-	0. 116
GRB	115	BK	257. 253	504.	546. 28	0. 923	0. 041	0. 880	-	1. 071
GAW	115	BK	257. 253	61.	546. 28	0. 112	0. 014	0. 062	-	0. 154
GRB	116	BK	257. 253	527.	546. 28	0. 965	0. 042	0. 859	-	1. 123
GAW	116	BK	257. 253	53.	546. 28	0. 097	0. 013	0. 038	-	0. 141
GRB	101	BK	257. 713	173.	100. 00	1. 730	0. 132	0. 730	-	1. 147 FAIL
GAW	101	BK	257. 713	30.	100. 00	0. 300	0. 055	0. 036	-	0. 109 FAIL
GRB	102	BK	257. 713	141.	100. 00	1. 410	0. 119	1. 190	-	1. 432
GAW	102	BK	257. 713	8.	100. 00	0. 080	0. 028	0. 021	-	0. 134
GRB	103	BK	257. 713	257.	100. 00	2. 570	0. 160	1. 862	-	2. 014 FAIL
GAW	103	BK	257. 713	5.	100. 00	0. 050	0. 022	0. 032	-	0. 110
GRB	104	BK	257. 713	121.	100. 00	1. 210	0. 110	0. 894	-	1. 109 FAIL
GAW	104	BK	257. 713	11.	100. 00	0. 110	0. 033	0. 044	-	0. 103 FAIL
LBG	5	BK	257. 984	512.	946. 00	0. 541	0. 024	0. 418	-	0. 679
LBG	6	BK	257. 984	561.	946. 00	0. 593	0. 025	0. 470	-	0. 738
LBG	16	BK	257. 974	0.	958. 80	0. 000	0. 000	0. 415	-	0. 568 FAIL
MEW	19	BK	257. 963	15235.	973. 20	15. 655	0. 127	14. 351	-	16. 067

LBG	15	SF	257. 640	30498.	12. 96	1. 036	0. 006	0. 997	-	1. 073
LBG	16	SF	257. 640	238869.	12. 96	0. 134	0. 000	0. 973	-	1. 046 FAIL
MEW	19	SF	257. 640	622125.	12. 96	0. 985	0. 001	0. 958	-	1. 017
GAW	17	SF	257. 641	142463.	14. 20	3. 221	0. 009	3. 103	-	3. 295
GAW	21	SF	257. 641	133137.	14. 20	3. 372	0. 009	3. 241	-	3. 442
2PI	22	SF	257. 641	115048.	14. 20	2. 156	0. 006	2. 092	-	2. 221
GAW	24	SF	257. 641	141998.	14. 20	2. 729	0. 007	2. 657	-	2. 821
GRB	109	SF	257. 258	474.	546. 24*****	0. 962	-	1. 032	FAIL	
GAW	109	SF	257. 258	46.	546. 24*****	1. 028	-	1. 106	FAIL	
GRB	110	SF	257. 258	924.	546. 24*****	0. 973	-	1. 033	FAIL	
GAW	110	SF	257. 258	55.	546. 24***** 85. 173	0. 986	-	1. 051	FAIL	
GRB	111	SF	257. 258	580.	546. 24*****	0. 958	-	1. 018	FAIL	
GAW	111	SF	257. 258	72.	546. 24*****	1. 055	-	1. 120	FAIL	
GRB	112	SF	257. 258	655.	546. 24*****	0. 936	-	1. 005	FAIL	
GAW	112	SF	257. 258	46.	546. 24*****	1. 035	-	1. 115	FAIL	
GRB	113	SF	257. 258	503.	546. 29*****	1. 008	-	1. 071	FAIL	
GAW	113	SF	257. 258	58.	546. 29*****	1. 035	-	1. 104	FAIL	
GRB	114	SF	257. 258	511.	546. 29*****	0. 980	-	1. 041	FAIL	
GAW	114	SF	257. 258	39.	546. 29*****	0. 996	-	1. 057	FAIL	
GRB	115	SF	257. 258	525.	546. 29*****	0. 952	-	1. 017	FAIL	
GAW	115	SF	257. 258	74.	546. 29*****	1. 010	-	1. 073	FAIL	
GRB	116	SF	257. 258	544.	546. 29*****	1. 020	-	1. 083	FAIL	
GAW	116	SF	257. 258	65.	546. 29*****	0. 969	-	1. 029	FAIL	
GRB	101	SF	257. 360	553.	400. 013090. 321415. 877	0. 958	-	1. 017	FAIL	
GAW	101	SF	257. 360	66.	400. 01*****	1. 101	-	1. 184	FAIL	
GRB	102	SF	257. 360	641.	400. 014795. 861*****	0. 962	-	1. 022	FAIL	
GAW	102	SF	257. 360	59.	400. 018417. 028*****	1. 080	-	1. 151	FAIL	
GRB	103	SF	257. 360	1008.	400. 012541. 601348. 074	0. 945	-	1. 003	FAIL	
GAW	103	SF	257. 360	69.	400. 019064. 301*****	1. 028	-	1. 096	FAIL	
GRB	104	SF	257. 360	459.	400. 018798. 155*****	0. 946	-	1. 005	FAIL	
GAW	104	SF	257. 360	69.	400. 01*****	0. 991	-	1. 077	FAIL	
GRB	105	SF	257. 259	686.	546. 21*****	0. 978	-	1. 042	FAIL	
GAW	105	SF	257. 259	78.	546. 21*****	0. 968	-	1. 028	FAIL	
GRB	106	SF	257. 259	640.	546. 21*****	0. 988	-	1. 055	FAIL	
GAW	106	SF	257. 259	193.	546. 21*****	1. 009	-	1. 076	FAIL	
GRB	107	SF	257. 259	533.	546. 21*****	0. 950	-	1. 011	FAIL	
GAW	107	SF	257. 259	33.	546. 21*****	1. 031	-	1. 094	FAIL	
GRB	108	SF	257. 259	724.	546. 21*****	0. 966	-	1. 026	FAIL	
GAW	108	SF	257. 259	60.	546. 21*****	1. 037	-	1. 118	FAIL	
GRB	109	SF	257. 638	13377.	10. 00	0. 997	0. 009	0. 960	-	1. 033
GAW	109	SF	257. 638	7139.	10. 00	1. 073	0. 013	1. 037	-	1. 102
GRB	110	SF	257. 638	14622.	10. 00	1. 000	0. 008	0. 973	-	1. 033
GAW	110	SF	257. 638	10751.	10. 00	1. 026	0. 010	0. 984	-	1. 051
GRB	111	SF	257. 638	15093.	10. 00	0. 979	0. 008	0. 958	-	1. 017
GAW	111	SF	257. 638	7496.	10. 00	1. 089	0. 013	1. 056	-	1. 122
GRB	112	SF	257. 638	14700.	10. 00	0. 959	0. 008	0. 933	-	1. 007
GAW	112	SF	257. 638	5978.	10. 00	1. 096	0. 014	1. 034	-	1. 118
GRB	113	SF	257. 638	13017.	10. 00	1. 047	0. 009	1. 009	-	1. 071
GAW	113	SF	257. 638	8543.	10. 00	1. 070	0. 012	1. 037	-	1. 104
GRB	114	SF	257. 638	14493.	10. 00	1. 005	0. 008	0. 980	-	1. 040
GAW	114	SF	257. 638	10242.	10. 00	1. 022	0. 010	0. 996	-	1. 057
GRB	115	SF	257. 638	15984.	10. 00	0. 958	0. 008	0. 953	-	1. 018
GAW	115	SF	257. 638	10095.	10. 00	1. 036	0. 010	1. 010	-	1. 072
GRB	116	SF	257. 638	14565.	10. 00	1. 043	0. 009	1. 021	-	1. 084
GAW	116	SF	257. 638	11222.	10. 00	0. 990	0. 009	0. 970	-	1. 030
GRB	101	SF	257. 639	13699.	10. 00	0. 986	0. 008	0. 956	-	1. 015
GAW	101	SF	257. 639	8972.	10. 00	1. 151	0. 012	1. 099	-	1. 187
GRB	102	SF	257. 639	14595.	10. 00	0. 996	0. 008	0. 962	-	1. 021
GAW	102	SF	257. 639	6565.	10. 00	1. 115	0. 014	1. 084	-	1. 151
GRB	103	SF	257. 639	15036.	10. 00	0. 981	0. 008	0. 943	-	1. 002
GAW	103	SF	257. 639	9120.	10. 00	1. 065	0. 011	1. 027	-	1. 091
GRB	104	SF	257. 639	13124.	10. 00	0. 976	0. 009	0. 945	-	1. 004

Gross Counter G.C. Status

05:24:14 20-AUG-91

Status at this time

TUE

✓ 8/20

Detector	SF	GMT	BK	GMT	BK4, 75	GMT	BK6, 49
LBG	1	0. 731	231.	0. 512	229.	0. 968	185.
LBG	2	1. 020	231.	0. 572	229.	0. 672	185.
LBG	3	1. 044	231.	0. 458	229.	0. 571	185.
LBG	4	1. 037	231.	0. 579NG229.		0. 782	185.
LBG	5	0. 911	232.	0. 521	229.	0. 854	185.
LBG	6	0. 904	232.	0. 608	229.	0. 770	185.
LBG	9	0. 908	231.	0. 461	229.	0. 574	185.
LBG	10	1. 054	231.	0. 592	229.	0. 689	185.
LBG	11	0. 942	231.	0. 489	229.	0. 599	185.
LBG	12	0. 960	231.	0. 584	229.	0. 692	185.
LBG	13	1. 051	231.	0. 499	229.	0. 822	185.
LBG	14	1. 082	231.	0. 591	229.	0. 736	185.
LBG	15	1. 066	231.	0. 612	229.	0. 746	185.
LBG	16	1. 021	231.	0. 492	229.	0. 605	185.
GAW	17	0. 701	231.	0. 065	229.	0. 000	0.
MEN	19	0. 484	231.	14. 457	229.	0. 666	123.
GAW	21	0. 381	231.	0. 116NG229.		0. 777	123.
2PI	22	0. 401	231.	0. 512	229.	0. 000	0.
GAW	23	0. 304	70	0. 007	133.	0. 000	0.
GAW	24	0. 704	231.	0. 200	229.	0. 000	0.
2PI	25	0. 320	118.	0. 103	118.	0. 000	0.
2PI	26	0. 324	118.	0. 253	113.	0. 000	0.
LSC	4	0. 000	0.	0. 000	0.	0. 000	0.
LSC	5	0. 000	0.	0. 000	0.	0. 000	0.
VLB	1	1. 000	190.	0. 289	190.	0. 000	0.
VLB	2	1. 000	190.	0. 246	190.	0. 000	0.
VLB	3	1. 000	190.	0. 236	190.	0. 000	0.
VLB	4	1. 000	190.	0. 281	190.	0. 000	0.
VLB	5	1. 000	190.	0. 219	190.	0. 000	0.
VLB	6	1. 000	190.	0. 246	190.	0. 000	0.
VLB	7	1. 000	190.	0. 292	190.	0. 000	0.
VLB	8	1. 000	190.	0. 291	190.	0. 000	0.
GAW	101	0. 000	0.	0. 000	0.	0. 000	0.
GAW	102	0. 000	0.	0. 000	0.	0. 000	0.
GAW	103	0. 000	0.	0. 000	0.	0. 000	0.
GAW	104	0. 000	0.	0. 000	0.	0. 000	0.
GAW	105	0. 000	0.	0. 000	0.	0. 000	0.
GAW	106	0. 000	0.	0. 000	0.	0. 000	0.
GAW	107	0. 000	0.	0. 000	0.	0. 000	0.
GAW	108	0. 000	0.	0. 000	0.	0. 000	0.
GAW	109	0. 000	0.	0. 000	0.	0. 000	0.
GAW	110	0. 000	0.	0. 000	0.	0. 000	0.
GAW	111	0. 000	0.	0. 000	0.	0. 000	0.
GAW	112	0. 000	0.	0. 000	0.	0. 000	0.
GAW	113	0. 000	0.	0. 000	0.	0. 000	0.
GAW	114	0. 000	0.	0. 000	0.	0. 000	0.
GAW	115	0. 000	0.	0. 000	0.	0. 000	0.
GAW	116	0. 000	0.	0. 000	0.	0. 000	0.
GRB	101	0. 700	231.	0. 000	0.	0. 000	0.
GRB	102	0. 700	231.	0. 000	0.	0. 000	0.
GRB	103	0. 777	231.	0. 000	0.	0. 000	0.
GRB	104	0. 976	231.	0. 000	0.	0. 000	0.
GRB	105	1. 012	231.	0. 000	0.	0. 000	0.
GRB	106	1. 020	231.	0. 000	0.	0. 000	0.

GRB	107	0.	977	831.	1.	47.0490229.	0.	0.000	0.	0.000	0.
GRB	108	0.	993	831.	1.	1.155490229.	0.	0.000	0.	0.000	0.
GRB	109	0.	994	831.	0.	9.989	831.	0.	0.000	0.	0.000
GRB	110	0.	993	831.	1.	1.687	831.	0.	0.000	0.	0.000
GRB	111	0.	963	831.	1.	0.079	831.	0.	0.000	0.	0.000
GRB	112	0.	963	831.	1.	1.160	831.	0.	0.000	0.	0.000
GRB	113	1.	037	831.	1.	0.078	831.	0.	0.000	0.	0.000
GRB	114	1.	013	831.	1.	0.963	831.	0.	0.000	0.	0.000
GRB	115	0.	975	831.	1.	0.64490229.	0.	0.000	0.	0.000	0.
GRB	116	1.	057	831.	1.	0.967	831.	0.	0.000	0.	0.000

Recent Q. C. counts

Detector	QC	Date	Pulse		Q.C.			Control limits		
			Counts	Min.	Value	Sigma				
LBG	1	BK	229. 954	1141.	1275.00	0.502	0.015	0.424	-	0.617
LBG	2	BK	229. 954	1291.	1275.00	0.567	0.016	0.484	-	0.658
LBG	3	BK	229. 954	989.	1275.00	0.439	0.014	0.355	-	0.568
LBG	4	BK	229. 954	1202.	1275.00	0.838	0.019	0.516	-	0.644 FAIL
LBG	5	BK	229. 954	1178.	1275.00	0.518	0.015	0.332	-	0.711
LBG	6	BK	229. 954	1203.	1275.00	0.574	0.016	0.497	-	0.734
LBG	7	BK	229. 954	1130.	1275.00	0.498	0.015	0.354	-	0.588
LBG	10	BK	229. 954	1402.	1275.00	0.618	0.016	0.497	-	0.670
LBG	11	BK	229. 954	1187.	1275.00	0.469	0.014	0.402	-	0.591
LBG	12	BK	229. 954	1272.	1275.00	0.560	0.016	0.525	-	0.644
LBG	13	BK	229. 954	1132.	1275.00	0.498	0.015	0.432	-	0.569
LBG	14	BK	229. 954	1269.	1275.00	0.558	0.016	0.535	-	0.650
LBG	15	BK	229. 954	1280.	1275.00	0.608	0.016	0.527	-	0.702
LBG	16	BK	229. 954	1063.	1275.00	0.463	0.014	0.422	-	0.573
MEW	19	BK	229. 954	38726.	1275.00	14.473	0.080	13.783	-	15.072
GRB	109	BK	229. 956	2170.	2405.36	0.910	0.019	0.805	-	1.110
GAW	109	BK	229. 956	134.	2405.36	0.056	0.005	0.044	-	0.079
GRB	110	BK	229. 956	2748.	2405.36	1.558	0.025	1.564	-	1.837 FAIL
GAW	110	BK	229. 956	181.	2405.36	0.075	0.006	0.023	-	0.087
GRB	111	BK	229. 956	2489.	2405.36	1.026	0.021	0.937	-	1.230
GAW	111	BK	229. 956	286.	2405.36	0.160	0.008	0.019	-	0.094 FAIL
GRB	112	BK	229. 956	2767.	2405.36	1.150	0.022	1.015	-	1.322
GAW	112	BK	229. 956	105.	2405.36	0.077	0.005	0.028	-	0.109
GRB	101	BK	229. 956	2786.	2404.81	1.150	0.022	0.884	-	1.288
GAW	101	BK	229. 956	167.	2404.81	0.069	0.005	0.035	-	0.109
GRB	102	BK	229. 956	2521.	2404.81	1.464	0.025	1.284	-	1.717
GAW	102	BK	229. 956	278.	2404.81	0.116	0.007	0.043	-	0.164
GRB	103	BK	229. 956	4807.	2404.81	2.011	0.029	1.733	-	2.227
GAW	103	BK	229. 956	165.	2404.81	0.064	0.005	0.014	-	0.118
GRB	104	BK	229. 956	2824.	2404.81	1.174	0.022	0.978	-	1.376
GAW	104	BK	229. 956	178.	2404.81	0.083	0.006	0.031	-	0.118
GRB	113	BK	229. 956	2141.	2405.66	1.306	0.023	0.895	-	1.189
GAW	113	BK	229. 956	426.	2405.66	0.177	0.009	0.048	-	0.149 FAIL
GRB	114	BK	229. 956	2043.	2405.66	1.265	0.023	0.996	-	1.514
GAW	114	BK	229. 956	250.	2405.66	0.105	0.007	0.046	-	0.118
GRB	115	BK	229. 956	6709.	2405.66	2.872	0.035	0.879	-	1.260 FAIL
GAW	115	BK	229. 956	608.	2405.66	0.253	0.010	0.031	-	0.154 FAIL
GRB	116	BK	229. 956	2307.	2405.66	1.084	0.021	0.730	-	1.190
GAW	116	BK	229. 956	154.	2405.66	0.064	0.005	0.010	-	0.132
GRB	105	BK	229. 957	4873.	2405.41	2.035	0.029	0.916	-	3.235
GAW	105	BK	229. 957	522.	2405.41	0.221	0.010	0.098	-	0.272
GRB	106	BK	229. 957	9586.	2405.41	3.985	0.041	-2.374	-	5.427
GAW	106	BK	229. 957	500.	2405.41	0.249	0.010	0.052	-	0.121 FAIL
GRB	107	BK	229. 957	7488.	2405.41	3.113	0.036	-1.763	-	4.575
GAW	107	BK	229. 957	399.	2405.41	0.166	0.008	0.052	-	0.141 FAIL
GRB	108	BK	229. 957	13632.	2405.40	5.667	0.049	0.902	-	1.491 FAIL
GAW	108	BK	229. 957	429.	2405.40	0.179	0.009	0.074	-	0.225

LBG	1	SF	231.633	32718.	12.08	0.958	0.005	0.921	-	0.978
LBG	2	SF	231.633	33257.	12.08	1.025	0.006	0.989	-	1.050
LBG	3	SF	231.633	25488.	12.08	1.057	0.007	1.011	-	1.074
LBG	4	SF	231.633	25477.	12.08	1.042	0.007	1.004	-	1.066
LBG	5	SF	231.633	32705.	12.08	0.893	0.005	0.706	-	1.175
LBG	6	SF	231.633	26498.	12.08	0.944	0.006	0.893	-	0.970
LBG	9	SF	231.633	36087.	12.08	0.955	0.005	0.919	-	0.999
LBG	10	SF	231.633	33451.	12.08	1.037	0.006	1.003	-	1.114
LBG	11	SF	231.633	29791.	12.08	0.996	0.006	0.969	-	1.029
LBG	12	SF	231.633	20253.	12.08	0.979	0.006	0.954	-	1.014
LBG	13	SF	231.633	29184.	12.08	1.054	0.006	1.019	-	1.083
LBG	14	SF	231.633	24000.	12.08	1.080	0.007	1.049	-	1.114
LBG	15	SF	231.633	27893.	12.08	1.055	0.006	1.013	-	1.076
MEW	19	SF	231.633	29506.	12.08	1.010	0.006	0.992	-	1.080
GAW	17	SF	231.635	576572.	12.08	0.991	0.001	0.960	-	1.019
GAW	21	SF	231.635	248995.	24.26	3.149	0.006	3.111	-	3.303
2PI	22	SF	231.635	210317.	24.26	4.177	0.010	3.539	-	3.758 FAIL
GAW	24	SF	231.635	197754.	24.26	2.143	0.005	2.070	-	2.268
GRB	101	SF	231.656	239073.	24.26	2.770	0.006	2.685	-	2.851
GAW	101	SF	231.656	13701.	10.00	0.986	0.008	0.961	-	1.021
GRB	102	SF	231.656	9130.	10.00	1.132	0.012	1.074	-	1.140
GAW	102	SF	231.656	14705.	10.00	0.988	0.008	0.967	-	1.026
GRB	103	SF	231.656	6826.	10.00	1.073	0.013	1.039	-	1.103
GAW	103	SF	231.656	15242.	10.00	0.968	0.008	0.948	-	1.007
GRB	104	SF	231.656	9377.	10.00	1.047	0.011	0.996	-	1.098
GAW	104	SF	231.656	13208.	10.00	0.970	0.008	0.942	-	1.014
GRB	105	SF	231.657	10577.	10.00	1.034	0.010	0.992	-	1.053
GAW	105	SF	231.657	12978.	10.00	1.006	0.009	0.967	-	1.055
GRB	106	SF	231.657	7367.	10.00	1.021	0.012	0.974	-	1.034
GAW	106	SF	231.657	12740.	10.00	1.020	0.009	0.991	-	1.052
GRB	107	SF	231.657	7311.	10.00	1.051	0.012	1.003	-	1.077
GAW	107	SF	231.657	13862.	10.00	0.985	0.008	0.924	-	1.025
GRB	108	SF	231.657	8899.	10.00	1.073	0.011	0.985	-	1.066 FAIL
GAW	108	SF	231.657	13356.	10.00	0.999	0.009	0.948	-	1.032
GRB	109	SF	231.657	13447.	10.00	1.079	0.012	1.023	-	1.092
GAW	109	SF	231.657	77013.	10.00	0.991	0.009	0.965	-	1.024
GRB	110	SF	231.657	13825.	10.00	1.062	0.012	1.001	-	1.081
GAW	110	SF	231.657	11543.	10.00	1.001	0.008	0.963	-	1.023
GRB	111	SF	231.657	7479.	10.00	1.017	0.010	0.991	-	1.058
GAW	111	SF	231.657	7424.	10.00	0.756	0.008	0.934	-	0.992
GRB	112	SF	231.657	14316.	10.00	1.091	0.013	0.998	-	1.060 FAIL
GAW	112	SF	231.657	6724.	10.00	0.989	0.008	0.937	-	0.995
GRB	113	SF	231.657	13017.	10.00	1.036	0.013	1.010	-	1.083
GAW	113	SF	231.657	8186.	10.00	1.047	0.009	1.005	-	1.067
GRB	114	SF	231.657	13463.	10.00	1.055	0.011	0.999	-	1.075
GAW	114	SF	231.657	10628.	10.00	1.010	0.008	0.981	-	1.043
GRB	115	SF	231.657	10628.	10.00	1.024	0.010	0.993	-	1.055
GAW	115	SF	231.657	13244.	10.00	0.979	0.008	0.937	-	1.011
GRB	116	SF	231.657	10081.	10.00	1.037	0.010	0.988	-	1.057
GAW	116	SF	231.657	14788.	10.00	1.055	0.009	1.025	-	1.088
GRB	117	SF	231.657	10078.	10.00	1.012	0.010	0.968	-	1.035
GAW	117	BK	231.657	14.	30.00	0.720	0.136	0.688	-	1.529
GRB	118	BK	231.657	2.	30.00	0.040	0.028	0.049	-	0.152 FAIL
GAW	119	BK	231.657	304.	30.00	1.020	0.071	0.791	-	1.112
GRB	110	BK	231.657	13.	30.00	0.075	0.019	0.044	-	0.077
GAW	110	BK	231.657	323.	30.00	1.610	0.090	1.556	-	1.846
GRB	111	BK	231.657	10.	30.00	0.250	0.035	0.022	-	0.095 FAIL
GAW	111	BK	231.657	412.	30.00	1.080	0.073	0.927	-	1.235
GRB	112	BK	231.657	21.	30.00	0.105	0.023	0.016	-	0.097 FAIL
GAW	112	BK	231.657	218.	30.00	1.225	0.078	1.014	-	1.322
LSC	5	NL LSC	231.657	378.	30.00	0.100	0.022	0.029	-	0.108
						8.780	0.296	-14.020	-	34.266

LBC	5	SF	222.006	25850.	9.55	0.698	0.006	0.885	-	0.940
LBC	6	SF	222.006	23024.	9.55	0.924	0.006	0.892	-	0.973

Gross Counter Q. C. Status

05:28:18 23-AUG-91

Status at this time

V 8/23 /FRI

Detector	SF	GMT	BK	GMT	BK4. 75	GMT	BK6. 49
LBG 1	0. 950	235.	0. 521NG235.		0. 968	185.	0. 605 297.
LBG 2	1. 021	235.	0. 572NG235.		0. 672	185.	0. 650 297.
LBG 3	1. 048	234.	0. 447	233.	0. 571	185.	0. 482 297.
LBG 4	1. 005	234.	0. 630	233.	0. 782	185.	0. 752 297.
LBG 5	0. 910NG234.		0. 520	232.	0. 854	185.	0. 578 281.
LBG 6	0. 937	234.	0. 608	232.	0. 770	185.	0. 665 281.
LBG 9	0. 950	234.	0. 481	229.	0. 574	185.	0. 591 297.
LBG 10	1. 038	234.	0. 593	229.	0. 689	185.	0. 677 297.
LBG 11	0. 997	234.	0. 489	229.	0. 599	185.	0. 572 297.
LBG 12	0. 987	234.	0. 584	229.	0. 692	185.	0. 601 297.
LBG 13	1. 054	234.	0. 499	229.	0. 822	185.	0. 574 297.
LBG 14	1. 083	234.	0. 591	229.	0. 736	185.	0. 633 297.
LBG 15	1. 042	234.	0. 612	229.	0. 746	185.	0. 677 297.
LBG 16	1. 028	234.	0. 492	229.	0. 605	185.	0. 579FC297.
MEW 17	3. 205	234.	0. 064	234.	0. 000	0.	0. 000 0.
GAW 19	0. 988	234.	14. 486	234.	0. 666	123.	0. 777 123.
GAW 21	3. 650NG233.		0. 103	234.	0. 000	0.	0. 000 0.
ZPI 22	2. 149	234.	0. 206	234.	0. 000	0.	0. 000 0.
GAW 23	3. 208	90.	0. 007	133.	0. 000	0.	0. 000 0.
GAW 24	2. 763	234.	0. 203NG234.		0. 000	0.	0. 000 0.
ZPI 25	2. 083	118.	0. 105	118.	0. 000	0.	0. 000 0.
ZPI 26	2. 326	118.	0. 233	113.	0. 000	0.	0. 000 0.
LSC 4	0. 000	0.	0. 000	0.	0. 000	0.	0. 000 0.
LSC 5	0. 000	0.	0. 000	0.	0. 000	0.	0. 000 0.
VLB 1	1. 100	190.	0. 289	190.	0. 000	0.	0. 000 0.
VLB 2	1. 130	190.	0. 246	190.	0. 000	0.	0. 000 0.
VLB 3	1. 105FC190.		0. 236	190.	0. 000	0.	0. 000 0.
VLB 4	1. 109	190.	0. 291	190.	0. 000	0.	0. 000 0.
VLB 5	1. 057	190.	0. 219	190.	0. 000	0.	0. 000 0.
VLB 6	1. 068	190.	0. 246	190.	0. 000	0.	0. 000 0.
VLB 7	1. 091	190.	0. 196	190.	0. 000	0.	0. 000 0.
VLB 8	1. 213	190.	0. 251	190.	0. 000	0.	0. 000 0.
GAW 101	1. 120	235.	0. 078NG235.		0. 000	0.	0. 000 0.
GAW 102	1. 073NG235.		0. 093	235.	0. 000	0.	0. 000 0.
GAW 103	1. 060	235.	0. 068NG235.		0. 000	0.	0. 000 0.
GAW 104	1. 026	235.	0. 086	235.	0. 000	0.	0. 000 0.
GAW 105	1. 007	235.	0. 190	235.	0. 000	0.	0. 000 0.
GAW 106	1. 045	235.	0. 168	235.	0. 000	0.	0. 000 0.
GAW 107	1. 032	235.	0. 138	235.	0. 000	0.	0. 000 0.
GAW 108	1. 060	235.	0. 142	235.	0. 000	0.	0. 000 0.
GAW 109	1. 058	235.	0. 062NG235.		0. 000	0.	0. 000 0.
GAW 110	1. 023	235.	0. 064	235.	0. 000	0.	0. 000 0.
GAW 111	1. 068	235.	0. 094	235.	0. 000	0.	0. 000 0.
GAW 112	1. 044	235.	0. 083	235.	0. 000	0.	0. 000 0.
GAW 113	1. 047	235.	0. 121	235.	0. 000	0.	0. 000 0.
GAW 114	1. 024	235.	0. 119	235.	0. 000	0.	0. 000 0.
GAW 115	1. 037	235.	0. 119	235.	0. 000	0.	0. 000 0.
GAW 116	1. 005	235.	0. 095	235.	0. 000	0.	0. 000 0.
GRB 101	0. 988	235.	1. 073	235.	0. 000	0.	0. 000 0.
GRB 102	0. 996	235.	1. 442	235.	0. 000	0.	0. 000 0.
GRB 103	0. 975	235.	1. 975NG235.		0. 000	0.	0. 000 0.
GRB 104	0. 981	235.	1. 118	235.	0. 000	0.	0. 000 0.
GRB 105	1. 012	235.	2. 072NG235.		0. 000	0.	0. 000 0.
GRB 106	1. 022	235.	2. 640	235.	0. 000	0.	0. 000 0.

GRB	107	0. 978	235.	1. 408	235.	0. 000	0.	0. 000	0.
GRB	108	0. 989	235.	3. 142	235.	0. 000	0.	0. 000	0.
GRB	109	0. 991	235.	0. 951	235.	0. 000	0.	0. 000	0.
GRB	110	0. 987	235.	1. 622	235.	0. 000	0.	0. 000	0.
GRB	111	0. 960	235.	1. 073	235.	0. 000	0.	0. 000	0.
GRB	112	0. 965	235.	1. 174	235.	0. 000	0.	0. 000	0.
GRB	113	1. 039	235.	1. 063	235.	0. 000	0.	0. 000	0.
GRB	114	1. 009	235.	1. 255NG	235.	0. 000	0.	0. 000	0.
GRB	115	0. 977	235.	1. 049	235.	0. 000	0.	0. 000	0.
GRB	116	1. 057	235.	1. 033	235.	0. 000	0.	0. 000	0.

Recent Q. C. counts

Detector	QC	Date	Gross Counts	Q. C.			Control limits	
				Min.	Value	Sigma		
MEW	19	BK	234. 290	6643.	463. 30	14. 338	0. 176	13. 844 - 15. 136
GAW	17	BK	234. 290	23.	470. 40	0. 049	0. 010	0. 000 - 0. 128
GAW	21	BK	234. 290	36.	470. 40	0. 077	0. 013	0. 069 - 0. 145
2PI	22	BK	234. 290	81.	470. 40	0. 172	0. 019	0. 156 - 0. 265
GAW	24	BK	234. 290	48.	470. 40	0. 102	0. 015	0. 152 - 0. 254 FAIL
GRB	115	BK	234. 297	383.	400. 00	0. 957	0. 049	0. 985 - 1. 217
GAW	115	BK	234. 297	47.	400. 00	0. 117	0. 017	0. 009 - 0. 198
GRB	105	BK	234. 297	516.	400. 00	1. 290	0. 057	1. 605 - 2. 733 FAIL
GAW	105	BK	234. 297	67.	400. 00	0. 168	0. 020	0. 120 - 0. 268
GRB	110	BK	234. 297	670.	400. 00	1. 675	0. 065	1. 467 - 1. 793
GAW	110	BK	234. 297	24.	400. 00	0. 060	0. 012	0. 007 - 0. 113
GRB	111	BK	234. 297	413.	400. 00	1. 033	0. 031	0. 976 - 1. 195
GAW	111	BK	234. 297	48.	400. 00	0. 120	0. 017	0. 025 - 0. 130
GRB	101	BK	234. 297	338.	400. 00	0. 845	0. 046	0. 829 - 1. 333
GAW	101	BK	234. 297	18.	400. 00	0. 045	0. 011	0. 055 - 0. 098 FAI
GRB	102	BK	234. 297	543.	400. 00	1. 357	0. 058	1. 212 - 1. 766
GAW	102	BK	234. 297	28.	400. 00	0. 070	0. 013	0. 032 - 0. 167
GRB	103	BK	234. 297	780.	400. 00	1. 950	0. 070	1. 804 - 2. 148
GAW	103	BK	234. 297	37.	400. 00	0. 093	0. 015	-0. 009 - 0. 129
LBG	1	SF	234. 643	41261.	15. 46	0. 972	0. 005	0. 922 - 0. 979
LBG	2	SF	234. 643	41380.	15. 46	1. 055	0. 005	0. 991 - 1. 052 FAI
LBG	3	SF	234. 643	32808.	15. 46	1. 051	0. 006	1. 017 - 1. 079
LBG	4	SF	234. 643	34286.	15. 46	0. 991	0. 005	0. 948 - 1. 077
LBG	5	SF	234. 643	42707.	15. 46	0. 881	0. 004	0. 884 - 0. 939 FAI
LBG	6	SF	234. 643	37289.	15. 46	0. 924	0. 005	0. 899 - 0. 971
LBG	9	SF	234. 643	46711.	15. 46	0. 944	0. 004	0. 924 - 0. 982
LBG	10	SF	234. 643	43401.	15. 46	1. 023	0. 005	1. 007 - 1. 073
LBG	11	SF	234. 643	38211.	15. 46	0. 994	0. 005	0. 968 - 1. 027
LBG	12	SF	234. 643	38847.	15. 46	0. 975	0. 005	0. 958 - 1. 017
LBG	13	SF	234. 643	36587.	15. 46	1. 039	0. 005	1. 024 - 1. 087
LBG	14	SF	234. 643	30983.	15. 46	1. 071	0. 006	1. 052 - 1. 117
LBG	15	SF	234. 643	36558.	15. 46	1. 031	0. 005	1. 012 - 1. 075
LBG	16	SF	234. 643	37589.	15. 46	1. 015	0. 005	0. 980 - 1. 087
MEW	19	SF	234. 643	742670.	15. 46	0. 985	0. 001	0. 959 - 1. 019
GAW	17	SF	234. 635	302757.	30. 20	3. 223	0. 006	3. 107 - 3. 300
2PI	22	SF	234. 635	245115.	30. 20	2. 153	0. 004	2. 085 - 2. 214
LBG	1	SF	234. 655	23139.	8. 49	0. 952	0. 006	0. 924 - 0. 981
LBG	2	SF	234. 655	28167.	8. 49	0. 851	0. 005	0. 991 - 1. 052 FAIL
LBG	5	SF	234. 655	23570.	8. 49	0. 876	0. 006	0. 882 - 0. 941 FAI
LBG	6	SF	234. 655	20034.	8. 49	0. 944	0. 007	0. 896 - 0. 971
GRB	101	SF	234. 668	13949.	10. 00	0. 969	0. 008	0. 962 - 1. 021
GAW	101	SF	234. 668	9164.	10. 00	1. 127	0. 012	1. 082 - 1. 149
GRB	102	SF	234. 668	14759.	10. 00	0. 985	0. 008	0. 967 - 1. 027
GAW	102	SF	234. 668	6716.	10. 00	1. 090	0. 013	1. 040 - 1. 105
GRB	103	SF	234. 668	15076.	10. 00	0. 978	0. 008	0. 946 - 1. 008
GAW	103	SF	234. 668	9222.	10. 00	1. 053	0. 011	1. 023 - 1. 095
GRB	104	SF	234. 668	13118.	10. 00	0. 977	0. 009	0. 941 - 1. 016

GAW	104	SF	234. 668	10600.	10. 00	1. 032	0. 010	0. 994	-	1. 055
GRB	105	SF	234. 668	12878.	10. 00	1. 013	0. 009	0. 972	-	1. 046
GAW	105	SF	234. 668	7548.	10. 00	0. 997	0. 011	0. 974	-	1. 035
GRB	106	SF	234. 668	12537.	10. 00	1. 037	0. 009	0. 990	-	1. 051
GAW	106	SF	234. 668	7430.	10. 00	1. 034	0. 012	1. 014	-	1. 076
GRB	107	SF	234. 668	14246.	10. 00	0. 958	0. 008	0. 939	-	1. 023
GAW	107	SF	234. 668	9140.	10. 00	1. 045	0. 011	0. 974	-	1. 081
GRB	108	SF	234. 668	13468.	10. 00	0. 992	0. 009	0. 948	-	1. 031
GAW	108	SF	234. 668	8319.	10. 00	1. 069	0. 012	1. 024	-	1. 095
GRB	109	SF	234. 668	13593.	10. 00	0. 981	0. 008	0. 963	-	1. 023
GAW	109	SF	234. 668	7119.	10. 00	1. 076	0. 013	1. 017	-	1. 087
GRB	110	SF	234. 668	14925.	10. 00	0. 979	0. 008	0. 953	-	1. 026
GAW	110	SF	234. 668	10736.	10. 00	1. 027	0. 010	0. 993	-	1. 055
GRB	111	SF	234. 668	15406.	10. 00	0. 959	0. 008	0. 931	-	0. 988
GAW	111	SF	234. 668	7519.	10. 00	1. 085	0. 013	0. 963	-	1. 136
GRB	112	SF	234. 668	14406.	10. 00	0. 978	0. 008	0. 937	-	0. 995
GAW	112	SF	234. 668	6263.	10. 00	1. 046	0. 013	1. 016	-	1. 078
GRB	113	SF	234. 668	13131.	10. 00	1. 038	0. 009	1. 005	-	1. 067
GAW	113	SF	234. 668	8621.	10. 00	1. 060	0. 011	0. 991	-	1. 092
GRB	114	SF	234. 668	14370.	10. 00	1. 013	0. 008	0. 979	-	1. 040
GAW	114	SF	234. 668	10202.	10. 00	1. 026	0. 010	0. 994	-	1. 056
GAW	115	SF	234. 668	15919.	10. 00	0. 962	0. 008	0. 936	-	1. 015
GRB	116	SF	234. 668	10035.	10. 00	1. 042	0. 010	0. 992	-	1. 071
GAW	116	SF	234. 668	14274.	10. 00	1. 064	0. 009	1. 026	-	1. 089
GAW	24	SF	234. 880	132499.	13. 35	2. 751	0. 008	2. 682	-	2. 847
LBG	1	SF	234. 994	38560.	13. 92	0. 937	0. 005	0. 924	-	0. 981
LBG	2	SF	234. 994	38964.	13. 92	1. 009	0. 005	0. 991	-	1. 052
LBG	1	SF	235. 056	91970.	33. 40	0. 942	0. 003	0. 921	-	0. 981
GRB	109	BK	235. 126	106.	100. 00	1. 022	0. 003	0. 990	-	1. 051
GAW	109	BK	235. 126	9.	100. 00	0. 090	0. 030	0. 039	-	0. 086 FAIL
GRB	110	BK	235. 126	162.	100. 00	1. 620	0. 127	1. 475	-	1. 780
GAW	110	BK	235. 126	7.	100. 00	0. 070	0. 026	0. 013	-	0. 112
GAW	111	BK	235. 126	100.	100. 00	1. 000	0. 100	0. 961	-	1. 202
GRB	111	BK	235. 126	12.	100. 00	0. 120	0. 035	0. 017	-	0. 153
GAW	112	BK	235. 126	117.	100. 00	1. 170	0. 108	1. 018	-	1. 317
GRB	113	BK	235. 126	12.	100. 00	0. 120	0. 035	0. 033	-	0. 121
GAW	113	BK	235. 126	102.	100. 00	1. 020	0. 101	0. 687	-	1. 452
GRB	114	BK	235. 126	6.	100. 00	0. 060	0. 024	0. 025	-	0. 225
GAW	114	BK	235. 126	87.	100. 00	0. 870	0. 093	1. 136	-	1. 393 FAIL
GRB	115	BK	235. 126	9.	100. 00	0. 090	0. 030	-0. 019	-	0. 253
GAW	115	BK	235. 126	103.	100. 00	1. 030	0. 101	0. 828	-	1. 325
GRB	116	BK	235. 126	17.	100. 00	0. 170	0. 041	0. 009	-	0. 197
GAW	116	BK	235. 126	110.	100. 00	1. 100	0. 105	0. 777	-	1. 241
GRB	101	BK	235. 126	8.	100. 00	0. 080	0. 028	-0. 006	-	0. 195
GAW	101	BK	235. 126	112.	100. 00	1. 120	0. 106	0. 729	-	1. 399
GRB	102	BK	235. 126	15.	100. 00	0. 150	0. 039	0. 058	-	0. 098 FAI
GAW	102	BK	235. 126	130.	100. 00	1. 300	0. 114	1. 173	-	1. 772
GRB	103	BK	235. 126	9.	100. 00	0. 090	0. 030	0. 026	-	0. 163
GAW	103	BK	235. 126	215.	100. 00	2. 150	0. 147	1. 800	-	2. 147 FAI
GRB	104	BK	235. 126	15.	100. 00	0. 150	0. 039	-0. 010	-	0. 139 FAIL
GAW	104	BK	235. 126	103.	100. 00	1. 030	0. 101	0. 914	-	1. 365
GRB	105	BK	235. 126	11.	100. 00	0. 110	0. 033	0. 038	-	0. 126
GAW	105	BK	235. 126	157.	100. 00	1. 570	0. 125	1. 748	-	2. 464 FAIL
GRB	106	BK	235. 126	19.	100. 00	0. 190	0. 044	0. 123	-	0. 266
GAW	106	BK	235. 126	242.	100. 00	2. 420	0. 156	-1. 436	-	6. 280
GRB	107	BK	235. 126	9.	100. 00	0. 090	0. 030	-0. 023	-	0. 355
GAW	107	BK	235. 126	88.	100. 00	0. 880	0. 094	-1. 733	-	4. 570
GRB	108	BK	235. 126	13.	100. 00	0. 130	0. 036	-0. 137	-	0. 396
GAW	108	BK	235. 126	330.	100. 00	3. 300	0. 182	-2. 345	-	7. 623
				14.	100. 00	0. 140	0. 037	0. 055	-	0. 229

GRB	109	SF	235.107	13484.	10.00	0.989	0.009	0.962	-	1.022
GAW	109	SF	235.107	7114.	10.00	1.077	0.013	1.012	-	1.096
GRB	110	SF	235.107	14621.	10.00	1.000	0.008	0.951	-	1.026
GAW	110	SF	235.107	11008.	10.00	1.002	0.010	0.994	-	1.056
GRB	111	SF	235.107	15332.	10.00	0.964	0.008	0.931	-	0.989
GAW	111	SF	235.107	7503.	10.00	1.088	0.013	0.971	-	1.146
GRB	112	SF	235.107	14650.	10.00	0.962	0.008	0.937	-	0.995
GAW	112	SF	235.107	6302.	10.00	1.040	0.013	1.014	-	1.077
GRB	113	SF	235.107	13186.	10.00	1.034	0.009	1.007	-	1.069
GAW	113	SF	235.107	8545.	10.00	1.070	0.012	0.992	-	1.097
GRB	114	SF	235.107	14606.	10.00	0.997	0.008	0.980	-	1.041
GAW	114	SF	235.107	10246.	10.00	1.022	0.010	0.994	-	1.055
GRB	115	SF	235.107	15654.	10.00	0.978	0.008	0.933	-	1.016
GAW	115	SF	235.107	10084.	10.00	1.037	0.010	1.002	-	1.068
GRB	116	SF	235.107	14663.	10.00	1.036	0.009	1.026	-	1.090
GAW	116	SF	235.107	11112.	10.00	1.000	0.009	0.973	-	1.036
GRB	101	SF	235.107	13641.	10.00	0.990	0.008	0.960	-	1.019
GAW	101	SF	235.107	9069.	10.00	1.139	0.012	1.084	-	1.151
GRB	102	SF	235.107	14750.	10.00	0.985	0.008	0.967	-	1.027
GAW	102	SF	235.107	6564.	10.00	1.115	0.014	1.041	-	1.106 FAIL
GRB	103	SF	235.107	15101.	10.00	0.977	0.008	0.946	-	1.007
GAW	103	SF	235.107	9186.	10.00	1.057	0.011	1.028	-	1.092
GRB	104	SF	235.107	13024.	10.00	0.984	0.009	0.945	-	1.015
GAW	104	SF	235.107	10641.	10.00	1.028	0.010	0.995	-	1.056
GRB	105	SF	235.108	12907.	10.00	1.011	0.009	0.972	-	1.046
GAW	105	SF	235.108	7334.	10.00	1.026	0.012	0.975	-	1.035
GRB	106	SF	235.108	12878.	10.00	1.010	0.009	0.993	-	1.054
GAW	106	SF	235.108	7358.	10.00	1.044	0.012	1.013	-	1.077
GRB	107	SF	235.108	14080.	10.00	0.969	0.008	0.932	-	1.027
GAW	107	SF	235.108	9173.	10.00	1.041	0.011	0.975	-	1.086
GRB	108	SF	235.108	13573.	10.00	0.984	0.008	0.954	-	1.029
GAW	108	SF	235.108	8357.	10.00	1.064	0.012	1.024	-	1.097
LBG	1	BK	235.111	2110.	213.20	9.897	0.215	0.420	-	0.616 FAI
LBG	2	BK	235.111	2208.	213.20	10.356	0.220	0.488	-	0.657 FAIL

Gross Counter Q. C. Status

05:25:05 10-AUG-91

SAT

78/19

Status at this time

Detector	SF	GMT	BK	GMT	BK4. 75	GMT	BK6. 49
LBG	1	0. 950	221.	0. 514	215.	0. 968	185.
LBG	2	1. 021	221.	0. 568	215.	0. 672	185.
LBG	3	1. 039	221.	0. 475	215.	0. 571	185.
LBG	4	1. 034	221.	0. 683	215.	0. 782	185.
LBG	5	0. 901	221.	0. 549NG219.		0. 854	185.
LBG	6	0. 925	221.	0. 664	221.	0. 770	185.
LBG	9	0. 972	221.	0. 460	219.	0. 574	185.
LBG	10	1. 071	221.	0. 576	219.	0. 689	185.
LBG	11	0. 993	221.	0. 495	215.	0. 599	185.
LBG	12	0. 984	221.	0. 584	215.	0. 692	185.
LBG	13	1. 045	221.	0. 501	215.	0. 822	185.
LBG	14	1. 084	221.	0. 599	215.	0. 736	185.
LBG	15	1. 034	221.	0. 627	215.	0. 746	185.
LBG	16	1. 026	221.	0. 510	215.	0. 605	185.
GAW	17	3. 198	221.	0. 068	221.	0. 000	0.
MEW	19	0. 990	221.	14. 401	220.	0. 666	123.
GAW	21	3. 637	221.	0. 126	221.	0. 000	0.
2PI	22	2. 170	221.	0. 209	221.	0. 000	0.
GAW	23	3. 208	90.	0. 007	133.	0. 000	0.
GAW	24	2. 770	221.	0. 193	221.	0. 000	0.
2PI	25	2. 083	118.	0. 105	118.	0. 000	0.
2PI	26	2. 326	118.	0. 233	113.	0. 000	0.
LSC	4	0. 000	0.	0. 000	0.	0. 000	0.
LSC	5	0. 000	0.	0. 000	0.	0. 000	0.
VLB	1	1. 100	190.	0. 289	190.	0. 000	0.
VLB	2	1. 130	190.	0. 246	190.	0. 000	0.
VLB	3	1. 105FC190.		0. 236	190.	0. 000	0.
VLB	4	1. 109	190.	0. 291	190.	0. 000	0.
VLB	5	1. 057	190.	0. 219	190.	0. 000	0.
VLB	6	1. 068	190.	0. 246	190.	0. 000	0.
VLB	7	1. 091	190.	0. 196	190.	0. 000	0.
VLB	8	1. 213	190.	0. 251	190.	0. 000	0.
GAW	101	1. 107	221.	0. 052	221.	0. 000	0.
GAW	102	1. 079	221.	0. 129	221.	0. 000	0.
GAW	103	1. 046	221.	0. 059	221.	0. 000	0.
GAW	104	1. 019	221.	0. 054	221.	0. 000	0.
GAW	105	1. 002NG221.		0. 118	221.	0. 000	0.
GAW	106	1. 032	221.	0. 061	221.	0. 000	0.
GAW	107	1. 031	221.	0. 077	221.	0. 000	0.
GAW	108	1. 056	221.	0. 067	221.	0. 000	0.
GAW	109	1. 036	221.	0. 057	221.	0. 000	0.
GAW	110	1. 015	221.	0. 063	221.	0. 000	0.
GAW	111	1. 028	221.	0. 062	221.	0. 000	0.
GAW	112	1. 036	221.	0. 067	221.	0. 000	0.
GAW	113	1. 044	221.	0. 092	221.	0. 000	0.
GAW	114	1. 015	221.	0. 081	221.	0. 000	0.
GAW	115	1. 019	221.	0. 086	221.	0. 000	0.
GAW	116	0. 998	221.	0. 072	221.	0. 000	0.
GRB	101	0. 993	221.	1. 066	221.	0. 000	0.
GRB	102	0. 996	221.	1. 418	221.	0. 000	0.
GRB	103	0. 980	221.	2. 007	221.	0. 000	0.
GRB	104	0. 979	221.	1. 208	221.	0. 000	0.
GRB	105	1. 014	221.	1. 667	221.	0. 000	0.
GRB	106	1. 017	221.	1. 031	221.	0. 000	0.

GRB	107	0.	975	221.	0. 951NG221.	0. 000	0.	0. 000	0.
GRB	108	0.	986	221.	1. 223 221.	0. 000	0.	0. 000	0.
GRB	109	0.	998	221.	0. 930NG221.	0. 000	0.	0. 000	0.
GRB	110	0.	997	221.	1. 729 221.	0. 000	0.	0. 000	0.
GRB	111	0.	960	221.	1. 040 221.	0. 000	0.	0. 000	0.
GRB	112	0.	963	221.	1. 132 221.	0. 000	0.	0. 000	0.
GRB	113	1.	040NG221.		1. 016NG221.	0. 000	0.	0. 000	0.
GRB	114	1.	007	221.	1. 305 221.	0. 000	0.	0. 000	0.
GRB	115	0.	978	221.	1. 036 221.	0. 000	0.	0. 000	0.
GRB	116	1.	041	221.	0. 915 221.	0. 000	0.	0. 000	0.

Recent Q. C. counts

Detector	QC	Date	Gross Counts	Min.	Q. C. Value	Sigma	Control limits	
LBG	5	BK	219. 291	0.	474. 50	0. 000	0. 000	0. 516 - 0. 600 FAIL
LBG	6	BK	219. 291	0.	474. 50	0. 000	0. 000	0. 520 - 0. 779 FAIL
LBG	9	BK	219. 291	230.	474. 50	0. 485	0. 032	0. 392 - 0. 525
LBG	10	BK	219. 291	289.	474. 50	0. 609	0. 036	0. 513 - 0. 633
MEW	19	BK	219. 291	6893.	474. 70	14. 521	0. 175	13. 486 - 15. 158
GAW	17	BK	219. 255	67.	524. 30	0. 128	0. 016	0. 025 - 0. 125 FAIL
GAW	21	BK	219. 266	71.	510. 10	0. 139	0. 017	0. 048 - 0. 185
2PI	22	BK	219. 279	91.	491. 50	0. 185	0. 019	0. 180 - 0. 257
GAW	24	BK	219. 266	104.	510. 10	0. 204	0. 020	0. 153 - 0. 241
GRB	101	BK	219. 294	562.	492. 42	1. 141	0. 048	0. 716 - 1. 202
GAW	101	BK	219. 294	19.	492. 42	0. 039	0. 009	0. 044 - 0. 087 FAIL
GRB	102	BK	219. 294	696.	492. 42	1. 413	0. 054	1. 224 - 1. 492
GAW	102	BK	219. 294	128.	492. 42	0. 260	0. 023	0. 057 - 0. 176
GRB	103	BK	219. 294	1009.	492. 42	2. 049	0. 065	1. 805 - 2. 229
GAW	103	BK	219. 294	36.	492. 42	0. 073	0. 012	0. 034 - 0. 087
GRB	104	BK	219. 294	603.	492. 42	1. 225	0. 050	0. 983 - 1. 523
GAW	104	BK	219. 294	19.	492. 42	0. 039	0. 009	0. 026 - 0. 086
GRB	105	BK	219. 294	2675.	492. 54	5. 431	0. 105	0. 673 - 2. 097 FAIL
GAW	105	BK	219. 294	55.	492. 54	0. 112	0. 015	-0. 020 - 0. 153
GRB	106	BK	219. 294	505.	492. 54	1. 025	0. 046	0. 761 - 1. 223
GAW	106	BK	219. 294	21.	492. 54	0. 043	0. 009	0. 036 - 0. 106
GRB	107	BK	219. 294	464.	492. 54	0. 942	0. 044	0. 830 - 1. 142
GAW	107	BK	219. 294	31.	492. 54	0. 063	0. 011	0. 014 - 0. 121
GRB	108	BK	219. 294	633.	492. 54	1. 285	0. 051	0. 896 - 1. 403
GAW	108	BK	219. 294	36.	492. 54	0. 073	0. 012	0. 012 - 0. 164
GRB	109	BK	219. 294	472.	492. 56	0. 958	0. 044	0. 866 - 1. 014
GAW	109	BK	219. 294	28.	492. 56	0. 057	0. 011	0. 037 - 0. 080
GRB	110	BK	219. 294	856.	492. 56	1. 738	0. 059	1. 280 - 2. 107
GAW	110	BK	219. 294	35.	492. 56	0. 071	0. 012	0. 005 - 0. 121
GRB	111	BK	219. 294	547.	492. 56	1. 111	0. 047	0. 926 - 1. 185
GAW	111	BK	219. 294	27.	492. 56	0. 055	0. 011	0. 037 - 0. 094
LBG	1	SF	219. 647	43319.	15. 83	0. 948	0. 005	0. 924 - 0. 981
LBG	2	SF	219. 647	43869.	15. 83	1. 019	0. 005	0. 991 - 1. 053
LBG	3	SF	219. 647	33802.	15. 83	1. 044	0. 006	1. 009 - 1. 071
LBG	4	SF	219. 647	33944.	15. 83	1. 025	0. 006	1. 004 - 1. 066
LBG	5	BK	219. 647	0.	15. 83	0. 000	0. 000	0. 516 - 0. 600 FAIL
LBG	6	BK	219. 647	0.	15. 83	0. 000	0. 000	0. 508 - 0. 795 FAIL
LBG	9	SF	219. 647	46368.	15. 83	0. 974	0. 005	0. 945 - 1. 003
LBG	10	SF	219. 647	41876.	15. 83	1. 086	0. 005	1. 031 - 1. 094
LBG	11	SF	219. 647	39039.	15. 83	0. 997	0. 005	0. 963 - 1. 023
LBG	12	SF	219. 647	39209.	15. 83	0. 989	0. 005	0. 957 - 1. 016
LBG	13	SF	219. 647	37379.	15. 83	1. 042	0. 005	1. 015 - 1. 078
LBG	14	SF	219. 647	31363.	15. 83	1. 084	0. 006	1. 051 - 1. 116
LBG	15	SF	219. 647	36866.	15. 83	1. 046	0. 005	1. 003 - 1. 065
LBG	16	SF	219. 647	38802.	15. 83	1. 007	0. 005	0. 960 - 1. 019
MEW	19	SF	219. 647	755234.	15. 83	0. 991	0. 001	0. 994 - 1. 055
GAW	17	SF	219. 647	159742.	15. 86	3. 208	0. 008	3. 103 - 3. 295

GAW	21	SF	219.647	137223.	15.86	3.653	0.010	3.521	-	3.739
2PI	22	SF	219.647	123857.	15.86	2.237	0.006	2.103	-	2.234 FAIL
GAW	24	SF	219.647	155425.	15.86	2.784	0.007	2.684	-	2.850
GRB	101	BK	219.294	562.	492.42	1.141	0.048	0.692	-	1.286
GAW	101	BK	219.294	19.	492.42	0.039	0.009	0.044	-	0.087 FAIL
GRB	102	BK	219.294	696.	492.42	1.413	0.054	1.243	-	1.510
GAW	102	BK	219.294	128.	492.42	0.260	0.023	-0.055	-	0.345
GRB	103	BK	219.294	1009.	492.42	2.049	0.065	1.810	-	2.216
GAW	103	BK	219.294	36.	492.42	0.073	0.012	0.033	-	0.090
GRB	104	BK	219.294	603.	492.42	1.225	0.050	0.994	-	1.520
GAW	104	BK	219.294	19.	492.42	0.039	0.009	0.021	-	0.085
GRB	105	BK	219.294	2675.	492.54	5.431	0.105	0.602	-	2.161 FAIL
GAW	105	BK	219.294	55.	492.54	0.112	0.015	-0.025	-	0.168
GAW	106	BK	219.294	505.	492.54	1.025	0.046	0.774	-	1.229
GRB	107	BK	219.294	21.	492.54	0.043	0.009	0.023	-	0.113
GAW	107	BK	219.294	464.	492.54	0.942	0.044	0.828	-	1.143
GRB	108	BK	219.294	31.	492.54	0.063	0.011	0.013	-	0.121
GAW	108	BK	219.294	633.	492.54	1.285	0.051	0.891	-	1.410
GRB	109	BK	219.294	36.	492.54	0.073	0.012	0.016	-	0.148
GAW	109	BK	219.294	472.	492.56	0.958	0.044	0.875	-	1.012
GRB	110	BK	219.294	28.	492.56	0.057	0.011	0.041	-	0.078
GAW	110	BK	219.294	856.	492.56	1.738	0.059	1.319	-	2.081
GRB	111	BK	219.294	35.	492.56	0.071	0.012	0.007	-	0.123
GAW	111	BK	219.294	547.	492.56	1.111	0.047	0.930	-	1.199
GRB	112	BK	219.294	27.	492.56	0.055	0.011	0.035	-	0.093
GAW	112	BK	219.294	544.	492.56	1.104	0.047	1.011	-	1.220
GRB	113	BK	219.295	512.	492.61	1.039	0.046	0.889	-	1.133
GAW	113	BK	219.295	55.	492.61	0.112	0.015	0.037	-	0.133
GRB	114	BK	219.295	670.	492.61	1.360	0.053	1.493	-	1.804 FAIL
GAW	114	BK	219.295	45.	492.61	0.091	0.014	0.023	-	0.114
GRB	115	BK	219.295	480.	492.61	0.974	0.044	0.799	-	1.147
GAW	115	BK	219.295	45.	492.61	0.091	0.014	0.058	-	0.101
GRB	116	BK	219.295	432.	492.61	0.877	0.042	0.804	-	1.120
GAW	116	BK	219.295	24.	492.61	0.049	0.010	-0.015	-	0.132
GRB	101	SF	219.648	13592.	10.00	0.994	0.009	0.966	-	1.026
GAW	101	SF	219.648	9375.	10.00	1.102	0.011	1.073	-	1.139
GRB	102	SF	219.648	14675.	10.00	0.990	0.008	0.968	-	1.028
GAW	102	SF	219.648	6613.	10.00	1.107	0.014	1.045	-	1.123
GRB	103	SF	219.648	15201.	10.00	0.970	0.008	0.952	-	1.011
GAW	103	SF	219.648	9171.	10.00	1.059	0.011	1.010	-	1.073
GRB	104	SF	219.648	13023.	10.00	0.984	0.009	0.952	-	1.011
GAW	104	SF	219.648	10648.	10.00	1.027	0.010	0.978	-	1.043
GRB	105	SF	219.648	12800.	10.00	1.019	0.009	0.983	-	1.043
GAW	105	SF	219.648	7493.	10.00	1.004	0.012	0.970	-	1.030
GRB	106	SF	219.648	12801.	10.00	1.015	0.009	0.990	-	1.051
GAW	106	SF	219.648	7464.	10.00	1.029	0.012	1.003	-	1.065
GRB	107	SF	219.648	13814.	10.00	0.987	0.008	0.941	-	1.009
GAW	107	SF	219.648	9378.	10.00	1.018	0.011	0.994	-	1.055
GRB	108	SF	219.648	13648.	10.00	0.978	0.008	0.958	-	1.017
GAW	108	SF	219.648	8450.	10.00	1.052	0.011	0.998	-	1.100
GRB	109	SF	219.648	13301.	10.00	1.003	0.009	0.970	-	1.030
GAW	109	SF	219.648	7350.	10.00	1.042	0.012	1.003	-	1.073
GRB	110	SF	219.648	14586.	10.00	1.002	0.008	0.967	-	1.027
GAW	110	SF	219.648	10994.	10.00	1.003	0.010	0.975	-	1.043
GRB	111	SF	219.648	15337.	10.00	0.964	0.008	0.933	-	0.991
GAW	111	SF	219.648	7925.	10.00	1.030	0.012	1.000	-	1.062
GRB	112	SF	219.648	14792.	10.00	0.953	0.008	0.936	-	0.994
GAW	112	SF	219.648	6343.	10.00	1.033	0.013	0.987	-	1.075
GRB	113	SF	219.648	12970.	10.00	1.051	0.009	1.011	-	1.074
GAW	113	SF	219.648	8681.	10.00	1.053	0.011	1.009	-	1.076
GRB	114	SF	219.648	14505.	10.00	1.004	0.008	0.980	-	1.040

GAW	114	SF	219.648	10369.	10.00	1.010	0.010	0.988	-	1.049
GRB	115	SF	219.648	15603.	10.00	0.981	0.008	0.944	-	1.002
GAW	115	SF	219.648	10181.	10.00	1.027	0.010	0.982	-	1.047
GRB	116	SF	219.648	14717.	10.00	1.032	0.009	1.012	-	1.074
GAW	116	SF	219.648	11094.	10.00	1.001	0.010	0.968	-	1.028
GRB	101	BK	219.851	112.	100.00	1.120	0.106	0.691	-	1.341
GAW	101	BK	219.851	1.	100.00	0.010	0.010	0.042	-	0.089 FAIL
GRB	102	BK	219.851	152.	100.00	1.520	0.123	1.255	-	1.511 FAIL
GAW	102	BK	219.851	16.	100.00	0.160	0.040	-0.064	-	0.392
GRB	103	BK	219.851	216.	100.00	2.160	0.147	1.810	-	2.218
GAW	103	BK	219.851	3.	100.00	0.030	0.017	0.031	-	0.093 FAIL
GAW	104	BK	219.851	131.	100.00	1.310	0.114	0.991	-	1.519
GRB	105	BK	219.851	3.	100.00	0.030	0.017	0.016	-	0.086
GAW	105	BK	219.852	418.	100.00	4.180	0.204	0.602	-	2.161 FAIL
GRB	106	BK	219.852	12.	100.00	0.120	0.035	0.016	-	0.150
GAW	106	BK	219.852	110.	100.00	1.100	0.105	0.790	-	1.218
GRB	107	BK	219.852	9.	100.00	0.090	0.030	0.017	-	0.114
GAW	107	BK	219.852	131.	100.00	1.310	0.114	0.827	-	1.133 FAIL
GRB	108	BK	219.852	5.	100.00	0.050	0.022	0.016	-	0.117
GAW	108	BK	219.852	128.	100.00	1.280	0.113	0.888	-	1.443
GRB	109	BK	219.852	9.	100.00	0.090	0.030	0.019	-	0.144
GAW	109	BK	219.852	87.	100.00	0.870	0.093	0.882	-	1.010 FAIL
GRB	110	BK	219.852	12.	100.00	0.120	0.035	0.041	-	0.078 FAIL
GAW	110	BK	219.852	156.	100.00	1.560	0.125	1.350	-	2.060
GRB	111	BK	219.852	6.	100.00	0.060	0.024	0.008	-	0.119
GAW	111	BK	219.852	85.	100.00	0.850	0.092	0.938	-	1.204 FAIL
GRB	112	BK	219.852	5.	100.00	0.050	0.022	0.033	-	0.094
GAW	112	BK	219.852	105.	100.00	1.050	0.102	1.022	-	1.205
GRB	113	BK	219.852	7.	100.00	0.070	0.026	0.038	-	0.098
GAW	113	BK	219.852	99.	100.00	0.990	0.099	0.921	-	1.121
GRB	114	BK	219.852	19.	100.00	0.190	0.044	0.035	-	0.143 FAIL
GAW	114	BK	219.852	141.	100.00	1.410	0.119	1.489	-	1.786 FAIL
GRB	115	BK	219.852	9.	100.00	0.090	0.030	0.020	-	0.122
GAW	115	BK	219.852	125.	100.00	1.250	0.112	0.810	-	1.145 FAIL
GRB	116	BK	219.852	9.	100.00	0.090	0.030	0.055	-	0.107
GAW	116	BK	219.852	114.	100.00	1.140	0.107	0.790	-	1.129 FAIL
GRB	113	SF	219.830	13218.	10.00	1.031	0.009	1.011	-	1.073
GAW	113	SF	219.830	8739.	10.00	1.046	0.011	1.011	-	1.073
GRB	114	SF	219.830	14638.	10.00	0.995	0.008	0.979	-	1.039
GAW	114	SF	219.830	10459.	10.00	1.001	0.010	0.987	-	1.048
GRB	115	SF	219.830	15651.	10.00	0.978	0.008	0.946	-	1.004
GAW	115	SF	219.830	10076.	10.00	1.038	0.010	0.987	-	1.048
GRB	116	SF	219.830	14677.	10.00	1.035	0.009	1.009	-	1.072
GAW	116	SF	219.830	11200.	10.00	0.992	0.009	0.967	-	1.026
GRB	101	SF	219.830	13633.	10.00	0.991	0.008	0.965	-	1.025
GAW	101	SF	219.830	9340.	10.00	1.106	0.011	1.072	-	1.138
GRB	102	SF	219.830	14642.	10.00	0.993	0.008	0.968	-	1.028
GAW	102	SF	219.830	6901.	10.00	1.061	0.013	1.041	-	1.130
GRB	103	SF	219.830	15129.	10.00	0.975	0.008	0.953	-	1.012
GAW	103	SF	219.830	9229.	10.00	1.052	0.011	1.014	-	1.077
GRB	104	SF	219.830	13355.	10.00	0.959	0.008	0.953	-	1.012
GAW	104	SF	219.830	10810.	10.00	1.012	0.010	0.975	-	1.049
GRB	105	SF	219.830	13298.	10.00	0.981	0.009	0.983	-	1.043 FAIL
GAW	105	SF	219.830	7549.	10.00	0.996	0.011	0.972	-	1.032
GRB	106	SF	219.830	12940.	10.00	1.004	0.009	0.988	-	1.049
GAW	106	SF	219.830	7570.	10.00	1.015	0.012	1.002	-	1.063
GRB	107	SF	219.830	13940.	10.00	0.978	0.008	0.943	-	1.012
GAW	107	SF	219.830	9110.	10.00	1.048	0.011	0.993	-	1.054
GRB	108	SF	219.830	13484.	10.00	0.989	0.009	0.956	-	1.016
GAW	108	SF	219.830	8348.	10.00	1.065	0.012	0.998	-	1.097
GRB	109	SF	219.830	13297.	10.00	1.004	0.009	0.971	-	1.031

GAW	109	SF	219.	830	7324.	10.00	1.046	0.012	1.009	-	1.071
GRB	110	SF	219.	830	14600.	10.00	1.001	0.008	0.968	-	1.028
GAW	110	SF	219.	830	10826.	10.00	1.019	0.010	0.980	-	1.041
GRB	111	SF	219.	830	15632.	10.00	0.946	0.008	0.933	-	0.990
GAW	111	SF	219.	830	7961.	10.00	1.025	0.011	1.001	-	1.063
GRB	112	SF	219.	830	14585.	10.00	0.966	0.008	0.934	-	0.992
GRB	113	BK	220.	028	6168.	10.00	1.062	0.014	0.987	-	1.073
GAW	113	BK	220.	028	99.	100.00	0.990	0.099	0.913	-	1.122
GRB	114	BK	220.	028	5.	100.00	0.050	0.022	0.035	-	0.143
GAW	114	BK	220.	028	157.	100.00	1.570	0.125	1.120	-	1.537
GRB	115	BK	220.	028	9.	100.00	0.090	0.030	0.021	-	0.124
GAW	115	BK	220.	028	128.	100.00	1.280	0.113	0.810	-	1.145 FAIL
GRB	116	BK	220.	028	8.	100.00	0.080	0.028	0.054	-	0.110
GAW	116	BK	220.	028	82.	100.00	0.820	0.091	0.781	-	1.141
GRB	105	BK	220.	028	10.	100.00	0.100	0.032	-0.030	-	0.162
GAW	105	BK	220.	028	239.	100.00	2.390	0.155	0.602	-	2.161 FAIL
GRB	106	BK	220.	028	22.	100.00	0.220	0.047	0.010	-	0.162 FAIL
GAW	106	BK	220.	028	103.	100.00	1.030	0.101	0.786	-	1.249
GRB	107	BK	220.	028	6.	100.00	0.060	0.024	0.018	-	0.121
GAW	107	BK	220.	028	143.	100.00	1.430	0.120	0.818	-	1.146 FAIL
GRB	108	BK	220.	028	5.	100.00	0.050	0.022	0.012	-	0.118
GAW	108	BK	220.	028	128.	100.00	1.280	0.113	0.920	-	1.460
GRB	109	BK	220.	028	2.	100.00	0.020	0.014	0.019	-	0.145
GAW	109	BK	220.	028	96.	100.00	0.960	0.098	0.831	-	1.039
GRB	110	BK	220.	028	6.	100.00	0.060	0.024	0.039	-	0.079
GAW	110	BK	220.	028	189.	100.00	1.890	0.137	1.326	-	2.051
GRB	111	BK	220.	028	7.	100.00	0.070	0.026	0.023	-	0.110
GAW	111	BK	220.	028	110.	100.00	1.100	0.105	0.778	-	1.308
GRB	112	BK	220.	028	9.	100.00	0.090	0.030	0.029	-	0.096
GAW	112	BK	220.	028	117.	100.00	1.170	0.108	0.990	-	1.216
GRB	101	BK	220.	028	4.	100.00	0.040	0.020	0.044	-	0.095 FAIL
GAW	101	BK	220.	028	97.	100.00	0.970	0.098	0.706	-	1.349
GRB	102	BK	220.	028	2.	100.00	0.020	0.014	-0.009	-	0.124
GAW	102	BK	220.	028	141.	100.00	1.410	0.119	1.207	-	1.663
GRB	103	BK	220.	028	9.	100.00	0.090	0.030	-0.044	-	0.371
GAW	103	BK	220.	028	187.	100.00	1.870	0.137	1.780	-	2.274
GRB	104	BK	220.	028	4.	100.00	0.040	0.020	0.017	-	0.102
GAW	104	BK	220.	028	119.	100.00	1.190	0.109	1.006	-	1.515
GRB	109	SF	220.	016	13472.	10.00	0.990	0.009	0.972	-	0.088
GRB	110	SF	220.	016	7463.	10.00	1.026	0.012	1.010	-	1.033
GAW	110	SF	220.	016	14654.	10.00	0.997	0.008	0.968	-	1.028
GRB	111	SF	220.	016	11000.	10.00	1.003	0.010	0.981	-	1.042
GAW	111	SF	220.	016	15415.	10.00	0.959	0.008	0.929	-	0.989
GRB	112	SF	220.	016	8002.	10.00	1.020	0.011	1.000	-	1.062
GAW	112	SF	220.	016	14571.	10.00	0.967	0.008	0.933	-	0.991
GRB	113	SF	220.	016	6326.	10.00	1.035	0.013	0.982	-	1.087
GAW	113	SF	220.	016	13234.	10.00	1.030	0.009	1.011	-	1.074
GRB	114	SF	220.	016	8800.	10.00	1.039	0.011	1.010	-	1.072
GAW	114	SF	220.	016	14649.	10.00	0.994	0.008	0.978	-	1.038
GRB	115	SF	220.	016	10308.	10.00	1.016	0.010	0.985	-	1.046
GAW	115	SF	220.	016	15802.	10.00	0.969	0.008	0.947	-	1.005
GRB	116	SF	220.	016	10398.	10.00	1.007	0.010	0.987	-	1.054
GAW	116	SF	220.	016	14470.	10.00	1.050	0.009	1.009	-	1.071
GRB	101	SF	220.	017	11304.	10.00	0.983	0.009	0.967	-	1.027
GAW	101	SF	220.	017	13597.	10.00	0.994	0.009	0.964	-	1.024
GRB	102	SF	220.	017	9361.	10.00	1.104	0.011	1.074	-	1.140
GAW	102	SF	220.	017	14668.	10.00	0.991	0.008	0.968	-	1.028
GRB	103	SF	220.	017	6717.	10.00	1.090	0.013	1.037	-	1.132
GAW	103	SF	220.	017	15041.	10.00	0.981	0.008	0.953	-	1.012
GRB	104	SF	220.	017	9220.	10.00	1.053	0.011	1.015	-	1.078
			220.	017	12943.	10.00	0.990	0.009	0.948	-	1.013

GAW	104	SF	220.017	10757.	10.00	1.017	0.010	0.981	-	1.046
GRB	105	SF	220.017	13084.	10.00	0.997	0.009	0.982	-	1.043
GAW	105	SF	220.017	7518.	10.00	1.001	0.012	0.971	-	1.031
GRB	106	SF	220.017	12609.	10.00	1.030	0.009	0.987	-	1.048
GAW	106	SF	220.017	7410.	10.00	1.037	0.012	0.999	-	1.061
GRB	107	SF	220.017	14154.	10.00	0.964	0.008	0.947	-	1.011
GAW	107	SF	220.017	9245.	10.00	1.033	0.011	0.993	-	1.058
GRB	108	SF	220.017	13772.	10.00	0.969	0.008	0.955	-	1.014
GAW	108	SF	220.017	8601.	10.00	1.034	0.011	1.018	-	1.089
GAW	17	BK	220.237	32.	540.60	0.059	0.010	0.022	-	0.125
GAW	21	BK	220.237	75.	540.60	0.139	0.016	0.048	-	0.184
2PI	22	BK	220.237	100.	540.60	0.185	0.018	0.166	-	0.265
GAW	24	BK	220.237	96.	540.60	0.178	0.018	0.156	-	0.235
GRB	101	BK	220.265	521.	521.18	1.000	0.044	0.707	-	1.348
GAW	101	BK	220.265	26.	521.18	0.050	0.010	-0.020	-	0.126
GRB	102	BK	220.265	718.	521.18	1.378	0.051	1.216	-	1.631
GAW	102	BK	220.265	42.	521.18	0.081	0.012	-0.053	-	0.362
GRB	103	BK	220.265	1066.	521.18	2.045	0.063	1.729	-	2.281
GAW	103	BK	220.265	42.	521.18	0.081	0.012	0.011	-	0.103
GRB	104	BK	220.265	547.	521.18	1.050	0.045	0.997	-	1.518
GAW	104	BK	220.265	26.	521.18	0.050	0.010	0.009	-	0.088
GRB	109	BK	220.265	457.	521.33	0.877	0.041	0.831	-	1.039
GAW	109	BK	220.265	24.	521.33	0.046	0.009	0.043	-	0.072
GRB	110	BK	220.265	880.	521.33	1.688	0.057	1.317	-	2.100
GAW	110	BK	220.265	24.	521.33	0.046	0.009	0.029	-	0.101
GRB	111	BK	220.265	569.	521.33	1.091	0.046	0.795	-	1.304
GAW	111	BK	220.265	29.	521.33	0.056	0.010	0.021	-	0.109
GRB	112	BK	220.265	639.	521.33	1.226	0.048	0.984	-	1.241
GAW	112	BK	220.265	42.	521.33	0.081	0.012	0.042	-	0.097
GRB	105	BK	220.265	1195.	521.31	2.292	0.066	0.545	-	2.129 FAIL
GAW	105	BK	220.265	84.	521.31	0.161	0.018	0.008	-	0.167
GRB	106	BK	220.265	567.	521.31	1.088	0.046	0.825	-	1.183
GAW	106	BK	220.265	35.	521.31	0.067	0.011	0.016	-	0.120
GRB	107	BK	220.265	830.	521.31	1.592	0.055	0.820	-	1.122 FAIL
GAW	107	BK	220.265	48.	521.31	0.092	0.013	0.008	-	0.118
GRB	108	BK	220.265	607.	521.31	1.164	0.047	0.913	-	1.477
GAW	108	BK	220.265	35.	521.31	0.067	0.011	-0.010	-	0.161
GRB	113	BK	220.265	544.	521.39	1.043	0.045	0.912	-	1.122
GAW	113	BK	220.265	52.	521.39	0.100	0.014	0.020	-	0.152
GRB	114	BK	220.265	674.	521.39	1.293	0.050	1.006	-	1.748
GAW	114	BK	220.265	39.	521.39	0.075	0.012	0.020	-	0.128
GRB	115	BK	220.265	565.	521.39	1.084	0.046	0.803	-	1.158
GAW	115	BK	220.265	48.	521.39	0.092	0.013	0.056	-	0.108
GRB	116	BK	220.265	479.	521.39	0.919	0.042	0.710	-	1.180
GAW	116	BK	220.265	32.	521.39	0.061	0.011	-0.032	-	0.171
LBG	1	SF	220.638	29405.	10.70	0.944	0.006	0.923	-	0.980
LBG	2	SF	220.638	29546.	10.70	1.022	0.006	0.990	-	1.052
LBG	3	SF	220.638	22943.	10.70	1.040	0.007	1.009	-	1.071
LBG	4	SF	220.638	22516.	10.70	1.045	0.007	1.003	-	1.065
LBG	9	SF	220.638	31495.	10.70	0.969	0.005	0.945	-	1.004
LBG	10	SF	220.638	28308.	10.70	1.086	0.006	1.026	-	1.105
LBG	11	SF	220.638	26368.	10.70	0.997	0.006	0.963	-	1.023
LBG	12	SF	220.638	26964.	10.70	0.972	0.006	0.957	-	1.016
LBG	13	SF	220.638	25017.	10.70	1.052	0.007	1.015	-	1.078
LBG	14	SF	220.638	21294.	10.70	1.079	0.007	1.051	-	1.116
LBG	15	SF	220.638	25293.	10.70	1.031	0.006	1.004	-	1.066
LBG	16	SF	220.638	25715.	10.70	1.027	0.006	0.992	-	1.054
GRB	109	SF	220.647	13366.	10.00	0.993	0.009	0.971	-	1.031
GAW	109	SF	220.647	7385.	10.00	1.037	0.012	1.006	-	1.073
GRB	110	SF	220.647	14573.	10.00	1.003	0.008	0.968	-	1.028
GAW	110	SF	220.647	10764.	10.00	1.025	0.010	0.981	-	1.042
GRB	111	SF	220.647	15279.	10.00	0.967	0.008	0.930	-	0.989

GAW	111	SF	220.647	7868.	10.00	1.037	0.012	0.998	-	1.060
GRB	116	SF	220.647	14139.	10.00	1.074	0.009	1.009	-	1.072 FAIL
GAW	116	SF	220.647	11023.	10.00	1.008	0.010	0.967	-	1.027
GRB	101	SF	220.647	13632.	10.00	0.991	0.008	0.964	-	1.024
GAW	101	SF	220.647	9459.	10.00	1.092	0.011	1.073	-	1.140
GRB	102	SF	220.647	14537.	10.00	1.000	0.008	0.967	-	1.027
GAW	102	SF	220.647	6814.	10.00	1.074	0.013	1.037	-	1.133
GRB	103	SF	220.647	14948.	10.00	0.987	0.008	0.953	-	1.012
GAW	103	SF	220.647	9432.	10.00	1.030	0.011	1.015	-	1.078
GRB	104	SF	220.647	13140.	10.00	0.975	0.009	0.947	-	1.015
GAW	104	SF	220.647	10622.	10.00	1.030	0.010	0.982	-	1.047
GRB	105	SF	220.647	12725.	10.00	1.025	0.009	0.982	-	1.043
GAW	105	SF	220.647	7464.	10.00	1.008	0.012	0.972	-	1.032
GRB	106	SF	220.647	12901.	10.00	1.007	0.009	0.988	-	1.049
GAW	106	SF	220.647	7533.	10.00	1.020	0.012	1.000	-	1.062
GRB	107	SF	220.647	14094.	10.00	0.968	0.008	0.948	-	1.010
GAW	107	SF	220.647	9174.	10.00	1.041	0.011	0.993	-	1.060
GRB	108	SF	220.647	13406.	10.00	0.995	0.009	0.954	-	1.013
GAW	108	SF	220.647	8376.	10.00	1.061	0.012	1.012	-	1.092
MEW	19	SF	220.655	235948.	25.86	5.190	0.011	0.960	-	1.020 FAIL
GAW	17	SF	220.655	258674.	25.72	3.213	0.006	3.103	-	3.295
GAW	21	SF	220.655	222261.	25.72	3.659	0.008	3.523	-	3.741
2PI	22	SF	220.655	208639.	25.72	2.154	0.005	2.103	-	2.234
GAW	24	SF	220.655	253792.	25.72	2.766	0.005	2.687	-	2.853
MEW	19	SF	220.673	383074.	8.02	0.990	0.002	0.960	-	1.020
LSC	4	H DST	220.899	349.	100.00	3.490	0.187	3.279	-	5.081
GRB	109	BK	220.699	107.	100.00	1.070	0.103	0.813	-	1.042 FAIL
GAW	109	BK	220.699	8.	100.00	0.080	0.028	0.037	-	0.076 FAIL
GRB	110	BK	220.699	171.	100.00	1.710	0.131	1.485	-	1.987
GAW	110	BK	220.699	6.	100.00	0.060	0.024	0.023	-	0.102
GRB	111	BK	220.699	94.	100.00	0.940	0.097	0.811	-	1.297
GAW	111	BK	220.699	6.	100.00	0.060	0.024	0.022	-	0.106
GRB	112	BK	220.699	133.	100.00	1.330	0.115	0.958	-	1.296 FAIL
GAW	112	BK	220.699	8.	100.00	0.080	0.028	0.043	-	0.099
GRB	113	BK	220.699	140.	100.00	1.400	0.118	0.915	-	1.116 FAIL
GAW	113	BK	220.699	12.	100.00	0.120	0.035	0.020	-	0.153
GRB	114	BK	220.699	118.	100.00	1.180	0.109	1.015	-	1.710
GAW	114	BK	220.699	8.	100.00	0.080	0.028	0.022	-	0.124
GRB	115	BK	220.699	105.	100.00	1.050	0.102	0.791	-	1.201
GAW	115	BK	220.699	7.	100.00	0.070	0.026	0.055	-	0.111
GRB	116	BK	220.699	101.	100.00	1.010	0.100	0.743	-	1.111
GAW	116	BK	220.699	3.	100.00	0.030	0.017	-0.033	-	0.168
GRB	101	BK	220.699	138.	100.00	1.380	0.117	0.777	-	1.309 FAIL
GAW	101	BK	220.699	14.	100.00	0.140	0.037	-0.020	-	0.120 FAIL
GRB	102	BK	220.699	122.	100.00	1.220	0.110	1.232	-	1.584 FAIL
GAW	102	BK	220.699	7.	100.00	0.070	0.026	-0.062	-	0.354
GRB	103	BK	220.699	196.	100.00	1.960	0.140	1.734	-	2.267
GAW	103	BK	220.699	5.	100.00	0.050	0.022	0.009	-	0.110
GRB	104	BK	220.699	113.	100.00	1.130	0.106	0.910	-	1.558
GAW	104	BK	220.699	8.	100.00	0.080	0.028	0.012	-	0.082
GRB	105	BK	220.699	208.	100.00	2.080	0.144	0.417	-	2.210
GRB	106	BK	220.699	24.	100.00	0.240	0.049	-0.013	-	0.204 FAIL
GAW	106	BK	220.699	94.	100.00	0.940	0.097	0.854	-	1.191
GRB	107	BK	220.699	5.	100.00	0.050	0.022	0.016	-	0.117
GAW	107	BK	220.699	160.	100.00	1.600	0.126	0.820	-	1.122 FAIL
GRB	108	BK	220.699	11.	100.00	0.110	0.033	0.014	-	0.124
GAW	108	BK	220.699	129.	100.00	1.290	0.114	0.928	-	1.472
GRB	101	BK	220.747	2.	100.00	0.020	0.014	-0.001	-	0.141
GAW	101	BK	220.747	327.	308.71	1.059	0.059	0.845	-	1.279
GRB	102	BK	220.747	25.	308.71	0.081	0.016	-0.025	-	0.125
GAW	102	BK	220.747	385.	308.71	1.247	0.064	1.278	-	1.562 FAIL
				23.	308.71	0.075	0.016	-0.080	-	0.361

GRB	103	BK	220.747	570.	308.71	1.846	0.077	1.769	-	2.249
GAW	103	BK	220.747	18.	308.71	0.058	0.014	0.013	-	0.108
GRB	104	BK	220.747	339.	308.71	1.098	0.060	0.936	-	1.542
GAW	104	BK	220.747	22.	308.71	0.071	0.015	0.005	-	0.097
GRB	109	BK	220.747	296.	308.77	0.959	0.056	0.807	-	1.039
GAW	109	BK	220.747	24.	308.77	0.078	0.016	0.038	-	0.077 FAIL
GRB	110	BK	220.747	526.	308.77	1.704	0.074	1.482	-	1.973
GAW	110	BK	220.747	12.	308.77	0.039	0.011	0.028	-	0.100
GRB	111	BK	220.747	301.	308.77	0.975	0.056	0.789	-	1.309
GAW	111	BK	220.747	17.	308.77	0.055	0.013	0.023	-	0.104
GRB	112	BK	220.747	425.	308.77	1.376	0.067	0.958	-	1.296 FAIL
GAW	112	BK	220.747	17.	308.77	0.055	0.013	0.049	-	0.091
GRB	105	BK	220.747	667.	308.78	2.160	0.084	0.018	-	2.769
GAW	105	BK	220.747	59.	308.78	0.191	0.025	-0.021	-	0.210
GRB	106	BK	220.747	343.	308.78	1.111	0.060	0.830	-	1.188
GAW	106	BK	220.747	23.	308.78	0.074	0.016	0.012	-	0.117
GRB	107	BK	220.747	495.	308.78	1.603	0.072	0.921	-	0.981 FAIL
GAW	107	BK	220.747	34.	308.78	0.110	0.019	0.004	-	0.139
GRB	108	BK	220.747	398.	308.78	1.289	0.065	0.929	-	1.497
GAW	108	BK	220.747	27.	308.78	0.087	0.017	-0.021	-	0.150
GRB	113	BK	220.747	366.	308.87	1.185	0.062	0.912	-	1.111 FAIL
GAW	113	BK	220.747	26.	308.87	0.084	0.017	0.015	-	0.162
GRB	114	BK	220.747	323.	308.87	1.046	0.058	0.958	-	1.716
GAW	114	BK	220.747	30.	308.87	0.097	0.018	0.039	-	0.114
GRB	115	BK	220.747	343.	308.87	1.110	0.060	0.807	-	1.211
GAW	115	BK	220.747	26.	308.87	0.084	0.017	0.056	-	0.111
GRB	116	BK	220.747	265.	308.87	0.858	0.053	0.743	-	1.111
GAW	116	BK	220.747	17.	308.87	0.055	0.013	-0.028	-	0.164
GAW	21	BK	220.921	16.	105.70	0.151	0.038	0.046	-	0.190
2PI	22	BK	220.921	23.	105.70	0.218	0.045	0.162	-	0.258
GAW	21	SF	221.004	180293.	20.66	3.623	0.009	3.527	-	3.745
2PI	22	SF	221.004	166995.	20.66	2.162	0.005	2.101	-	2.231
LBG	5	BK	221.281	0.	479.70	0.000	0.000	0.512	-	0.607
LBG	6	BK	221.281	292.	479.70	0.609	0.036	0.561	-	0.775
MEW	19	BK	220.899	14089.	983.60	14.324	0.121	13.531	-	15.153
GAW	17	BK	221.252	24.	520.20	0.046	0.009	0.028	-	0.110
GAW	21	BK	221.252	55.	520.20	0.106	0.014	0.082	-	0.174
2PI	22	BK	221.252	112.	520.20	0.215	0.020	0.163	-	0.259
GAW	24	BK	221.252	100.	520.20	0.192	0.019	0.151	-	0.235
LBG	1	SF	221.638	31076.	11.38	0.950	0.005	0.921	-	0.978
LBG	2	SF	221.638	31533.	11.38	1.018	0.006	0.991	-	1.052
LBG	3	SF	221.638	24335.	11.38	1.042	0.007	1.008	-	1.070
LBG	4	SF	221.638	24380.	11.38	1.026	0.007	1.004	-	1.067
LBG	5	SF	221.638	30775.	11.38	0.899	0.005	-0.845	-	2.532
LBG	6	SF	221.638	27086.	11.38	0.936	0.006*****	*****	*****	*****
LBG	9	SF	221.638	32105.	11.38	1.010	0.006	0.943	-	1.002 FAIL
LBG	10	SF	221.638	29347.	11.38	1.113	0.007	1.023	-	1.110 FAIL
LBG	11	SF	221.638	27958.	11.38	1.000	0.006	0.963	-	1.022
LBG	12	SF	221.638	28453.	11.38	0.980	0.006	0.955	-	1.014
LBG	13	SF	221.638	27011.	11.38	1.036	0.006	1.015	-	1.077
LBG	14	SF	221.638	22545.	11.38	1.083	0.007	1.051	-	1.116
LBG	15	SF	221.638	26641.	11.38	1.040	0.006	1.002	-	1.064
LBG	16	SF	221.638	26553.	11.38	1.057	0.006	0.993	-	1.054 FAIL
MEW	19	SF	221.638	543452.	11.38	0.990	0.001	0.960	-	1.020
GAW	17	SF	221.639	227945.	22.63	3.208	0.007	3.103	-	3.294
GAW	21	SF	221.639	195431.	22.63	3.661	0.008	3.524	-	3.742
2PI	22	SF	221.639	178911.	22.63	2.210	0.005	2.101	-	2.230
GAW	24	SF	221.639	223701.	22.63	2.761	0.006	2.687	-	2.853
LBG	9	SF	221.652	29698.	10.10	0.970	0.006	0.944	-	1.002
LBG	10	SF	221.652	27306.	10.10	1.063	0.006	1.025	-	1.111
LBG	15	SF	221.652	23784.	10.10	1.035	0.007	1.003	-	1.065
LBG	16	SF	221.652	23703.	10.10	1.052	0.007	0.993	-	1.054

GRB	101	BK	221.265	533.	521.12	1.023	0.044	0.884	-	1.262
GAW	101	BK	221.265	30.	521.12	0.058	0.011	-0.023	-	0.131
GRB	102	BK	221.265	739.	521.12	1.418	0.052	1.277	-	1.549
GAW	102	BK	221.265	45.	521.12	0.086	0.013	-0.097	-	0.364
GRB	103	BK	221.265	1082.	521.12	2.076	0.063	1.707	-	2.278
GAW	103	BK	221.265	28.	521.12	0.054	0.010	0.012	-	0.108
GRB	104	BK	221.265	648.	521.12	1.243	0.049	0.893	-	1.551
GAW	104	BK	221.265	38.	521.12	0.073	0.012	0.003	-	0.103
GRB	105	BK	221.266	1182.	521.24	2.268	0.066	-0.027	-	3.120
GAW	105	BK	221.266	74.	521.24	0.142	0.017	-0.044	-	0.260
GRB	106	BK	221.266	564.	521.24	1.082	0.046	0.824	-	1.214
GAW	106	BK	221.266	32.	521.24	0.061	0.011	0.013	-	0.115
GRB	107	BK	221.266	862.	521.24	1.654	0.056	0.921	-	0.981 FAIL
GAW	107	BK	221.266	38.	521.24	0.073	0.012	-0.001	-	0.149
GRB	108	BK	221.266	599.	521.24	1.149	0.047	0.944	-	1.498
GAW	108	BK	221.266	41.	521.24	0.079	0.012	-0.018	-	0.145
GRB	109	BK	221.266	557.	521.26	1.069	0.045	0.814	-	1.042 FAIL
GAW	109	BK	221.266	28.	521.26	0.054	0.010	0.038	-	0.077
GRB	110	BK	221.266	934.	521.26	1.792	0.059	1.478	-	1.970
GAW	110	BK	221.266	38.	521.26	0.073	0.012	0.027	-	0.100
GRB	111	BK	221.266	556.	521.26	1.067	0.045	0.772	-	1.311
GAW	111	BK	221.266	35.	521.26	0.067	0.011	0.024	-	0.103
GRB	112	BK	221.266	579.	521.26	1.111	0.046	0.958	-	1.296
GAW	112	BK	221.266	29.	521.26	0.056	0.010	0.042	-	0.094
GRB	115	BK	221.266	550.	521.32	1.055	0.045	0.847	-	1.221
GAW	115	BK	221.266	49.	521.32	0.094	0.013	0.058	-	0.109
GRB	116	BK	221.266	459.	521.32	0.880	0.041	0.734	-	1.104
GAW	116	BK	221.266	42.	521.32	0.081	0.012	-0.030	-	0.162
GRB	101	SF	221.655	13690.	10.00	0.987	0.008	0.964	-	1.024
GAW	101	SF	221.655	9262.	10.00	1.115	0.012	1.073	-	1.139
GRB	102	SF	221.655	14673.	10.00	0.991	0.008	0.969	-	1.029
GAW	102	SF	221.655	6973.	10.00	1.050	0.013	1.036	-	1.128
GRB	103	SF	221.655	15186.	10.00	0.971	0.008	0.953	-	1.012
GAW	103	SF	221.655	9254.	10.00	1.049	0.011	1.014	-	1.077
GRB	104	SF	221.655	13000.	10.00	0.986	0.009	0.946	-	1.015
GAW	104	SF	221.655	10646.	10.00	1.028	0.010	0.984	-	1.050
GRB	105	SF	221.655	12738.	10.00	1.024	0.009	0.982	-	1.043
GAW	105	SF	221.655	7261.	10.00	1.036	0.012	0.972	-	1.032 FAIL
GRB	106	SF	221.655	12700.	10.00	1.023	0.009	0.986	-	1.047
GAW	106	SF	221.655	7243.	10.00	1.060	0.012	1.000	-	1.061
GRB	107	SF	221.655	14317.	10.00	0.953	0.008	0.947	-	1.007
GAW	107	SF	221.655	9130.	10.00	1.046	0.011	0.995	-	1.063
GRB	108	SF	221.655	13432.	10.00	0.993	0.009	0.955	-	1.014
GAW	108	SF	221.655	8347.	10.00	1.065	0.012	1.012	-	1.094
GRB	109	SF	221.655	13412.	10.00	0.995	0.009	0.969	-	1.029
GAW	109	SF	221.655	7530.	10.00	1.017	0.012	1.006	-	1.068
GRB	110	SF	221.655	14846.	10.00	0.985	0.008	0.968	-	1.028
GAW	110	SF	221.655	10609.	10.00	1.040	0.010	0.981	-	1.042
GRB	111	SF	221.655	15388.	10.00	0.960	0.008	0.930	-	0.991
GAW	111	SF	221.655	7898.	10.00	1.033	0.012	0.998	-	1.059
GRB	112	SF	221.655	14625.	10.00	0.963	0.008	0.933	-	0.991
GAW	112	SF	221.655	6173.	10.00	1.061	0.014	0.981	-	1.081
GRB	113	SF	221.655	13567.	10.00	1.005	0.009	1.008	-	1.071 FAIL
GAW	113	SF	221.655	8759.	10.00	1.044	0.011	1.013	-	1.076
GRB	114	SF	221.655	14180.	10.00	1.027	0.009	0.976	-	1.037
GAW	114	SF	221.655	10205.	10.00	1.026	0.010	0.984	-	1.044
GRB	115	SF	221.655	15473.	10.00	0.989	0.008	0.946	-	1.005
GAW	115	SF	221.655	10305.	10.00	1.015	0.010	0.983	-	1.055
GRB	116	SF	221.655	14391.	10.00	1.055	0.009	1.009	-	1.071
GAW	116	SF	221.655	11098.	10.00	1.001	0.010	0.969	-	1.029
LSC	4	H DIR	221.022	88.	25.00	3.520	0.375	3.088	-	5.910
LBG	5	SF	221.925	37609.	13.97	0.903	0.005	-0.829	-	2.416

LBG	6	SF	221.925	33590.	13.97	0.926	0.005*****	-*****
LBG	5	SF	221.941	28556.	10.58	0.901	0.005	0.874 - 0.928
LBG	6	SF	221.941	25850.	10.58	0.912	0.006	0.903 - 0.959

NORMANDEAU ASSOCIATES

APPENDIX E

REAL TIME EXPOSURE MONITORING DATA

FORM 5E2

TMA / Eberline

WEEKLY FIELD SOURCE CHECK LOG

BACKGROUND LOCATION AT

SITE NAME HUNTER'S PT.

WEEK ENDING

SCALER/RATEMETER

. SERIAL NO.

CALIBRATION DATE

DUE

DETECTOR

SERIAL NO.

CALIBRATION DATE

DUE

CALCULATION OF SOURCE BY INSTRUMENT:

WF-10732

(-A-) SOURCE CHECK.com - BACKGROUND.com (-B-) = dom OR sub(-D-)
(-C-) INSTRUMENT CONVERSION OR EX

**NOTE: CONVERT EFFICIENCY FROM PERCENT TO DECIMAL EXAMPLE
18% TO 0.18 (EFFICIENCY CALIBRATED PROBES ONLY)**

REMARK

TMA / Eberline WEEKLY FIELD SOURCE CHECK LOG												
SITE NAME	<u>HUNTERS PT</u>											
WEEK ENDING	<u>PRC OFFICE</u>											
SCALERRATEMETER												
DETECTOR	SERIAL NO.			CALIBRATION DATE			DUE					
DATE	SOURCE	SERIAL NO.	ACTIVITY	SOURCE - A - CHECK, cpm	BACKGROUND cpm - B -	INSTRUMENT CONV. - C -	SOURCE BY INSTRUMENT	H.V. AT	BAT	SPKR	DISP	OK BY
TIME												
Y-27	TH-230	α	PRC OFFICE	1.17×10^4	0							
				$61,000$	1.14×10^4	0						
		β		5.9×10^3	35							
				5.8×10^3	34							
Y-28	TH-230	α		1.18×10^4	0							
		β		1.16×10^4	0							
		β		6.6×10^3	31							
				6.6×10^3	33							
Y-29	TH-230			11	0							
CALCULATION OF SOURCE BY INSTRUMENT:										LJF-10732		
(-A-) SOURCE CHECK, cpm - BACKGROUND, cpm (-B-)										= dpm OR μ R/hr (-D-)		
(-C-) INSTRUMENT CONVERSION, OR ER,										NOTE: CONVERT EFFICIENCY FROM PERCENT TO DECIMAL EXAMPLE 18% TO 0.18 (EFFICIENCY CALIBRATED PROBES ONLY)		
REMARK												

TMA / Eberline

FORM 5E.2

SITE NAME H P

WEEK ENDING

SCALER/RATEMETER

- SERIAL NO.

BACKGROUND LOCATION AT

PRC OFFICE

DETECTOR

SERIAL NO.

CALIBRATION DATE

- 6 -

CALCULATION OF SOURCE BY INSTRUMENT

(-A-) SOURCE CHECK.com - BACKGROUND.com / (-B-)
(-C-) INSTRUMENT CONVERSION, OR ETC.

- dpm OR μ R/hr (-0-)

**NOTE: CONVERT EFFICIENCY FROM PERCENT TO DECIMAL EXAMPLE
18% TO 0.18 (EFFICIENCY CALIBRATED PROBES ONLY)**

REMARK

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TMA / Eberline

FORM 5E2

SITE NAME HUNTERS PT WEEKEND

WEEKLY FIELD SOURCE CHECK LOG

WEEK ENDING _____

BACKGROUND LOCATION AT WE OFFICE

POLICE OFFICE

SCALER RADIOMETER

SERIAL NO. 5000

CALCULATION OF SOURCE BY INSTRUMENT

(-A-) SOURCE CHECK.com - BACKGROUND.com (-B-) = dpm OR pMfr (-D-)
(-C-) INSTRUMENT CONVERSION, OR ETC.

**NOTE: CONVERT EFFICIENCY FROM PERCENT TO DECIMAL EXAMPLE
18% TO 0.18 (EFFICIENCY CALIBRATED PROBES ONLY)**

REMARK

Procedure SA.1

Attachment 1

Revision 2

HUNTERS POINT PROJECT
RADIATION MEASUREMENTS
AT AMBIENT AIR MONITORING
LOCATIONS

INSTRUMENT: ESP I
MODE: SCALER CTN = 1 MIN

DATE	LOCATION	SOURCE MEASURED	PROBE ALPHA CPM	BETA, GAMMA CPM	COMMENTS
8.11.91	D7	BACKGROUND SOIL TRUCK TIRE FEET HANDS (PAUL) FEET HANDS (FELICE)	0 0 2 0 0 0	35 28 27 29 26 25 27	
8.12.91	D7 + C2	BACKGROUND FEET (PAUL) FEET (FELICE) TRUCK TIRE EQ PLAT Form(D7)	1×10^5 4.5×10^5 3×10^5 2×10^5 2.25×10^5	36 31 33 32 34	READING WITH THE α PROBE VOID DUE TO A HOLE IN THE MYLAR. THE TRUCK WAS DECONED AT THE STEAM CLEANER STATION.

CALIBRATION SOURCE: Th-230 - 61,000 dpm

HUNTERS POINT PROJECT
RADIATION MEASUREMENTS
AT AMBIENT AIR MONITORING
LOCATIONS

INSTRUMENT : ESF 1
MODE : SCALER CTN = 1 MIN

DATE	LOCATION	SOURCE MEASURED	PROBE ALPHA CPM	BETA, GAMMA CPM	COMMENTS
8-27-91	PRC OFFICE	BACKGROUND	0	35	
		D3	0	34	
		FEET (PAUL)	0	28	
	C2	FEET (HAL)	0	26	
		TRUCK TIRE	0	32	
		FEET (PAUL) TRUCK TIRE	1	31	
8-28-91	C2 + D3	FEET (PAT)	0	28	
		BACKGROUND	3.2×10^4	30	HOLE IN MYLAR ON A PROBE. READINGS ARE VOID.
		EQ PLATFORM (03)	3.8×10^4	28	
8-29-91	E3 -	FEET (PAUL)	—	31	
		FEET (HAL)	0	33	
		TRUCK TIRE	0	32	

CALIBRATION SOURCE: TH-230 - 61.000 cur

HUNTERS POINT PROJECT
RADIATION MEASUREMENTS
AT AMBIENT AIR MONITORING
LOCATIONS

INSTRUMENT : ESF L
MODE : SCALER CTN = 1 MIN

DATE	LOCATION	SOURCE MEASURED	PROBE ALPHA CPM	BETA, GAMMA CPM	COMMENTS
9.3	D4+D5	BACK GROUND EQ BOARD SOIL FEET (DM) FEET (HAL) TRUCK TIRE	0 0 0 - 0 0		
9.4	D7	EQ BOARD		3.6x10 ¹	
	C3	EQ BOARD FEET (DM) FEET (HAL) TRUCK TIRE BACK GROUND		25 22 26 25 38	

CALIBRATION SOURCE: Th-230 - 61,000 dpm